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Benzene Enabling Document for Standards on Benzene Transfer and Waste Operations

(U.S.) Environmental Protection Agency, Research Triangle Park, NC

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Benzene Enabling Document

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16. ABSTRACT On February 27, 1990, standards for Benzene were promulgated for benzene transfer and benzene waste operations. This benzene enabling document summarizes these standards. The basic purpose of this document is to assist the EPA regional enforcement personnel in the understanding of these regulations and the implementation plan for benzene NESHAPs. Flow diagrams that can assist in the determination of the applicability of the standards to the sources and example forms to be filled out by the waste operations listing stream characteristics are also included.

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BENZENE ENABLING DOCUMENT FOR STANDARDS ON BENZENE TRANSFER AND WASTE OPERATIONS

Prepared By

Emissions Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

March 1990

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Section 1 Introduction

The EPA has promulgated standards that were proposed in September 1989. These standards are for benzene transfer and benzene waste operations source categories. This Benzene Enabling document is a compilation and presentation of pertinent information regarding the Benzene NESHAP rulemaking in a simple, easy to understand format. It is intended to assist the EPA enforcement and other personnel who will need to respond to comments and questions on, and will implement these regulations. Any comments on this document may be sent to Fred Dimmick, Chief, Regulations Preparation Section (MD-13); U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

Section 2 contains a copy of the press release announcing the rules that are being promulgated for benzene transfer and benzene waste operations.

Section 3 presents the summary of the standards for each of the source categories. It summarizes the applicability, exemptions, control requirements, reporting and recordkeeping, and compliance dates of the standards. It presents a brief synopsis designed to be useful in a quick determination of whether any facility is subject to the rules or not. Enforcement/compliance personnel, however, should carefully read the other pertinent sections of the published regulations before making a final determination.

Section 4 presents three important sections of the general provisions from the Code of Federal Regulations (40 CFR Part 61) which relate to NESHAP requirements; § 61.10 source reporting and waiver request; § 61.11 waiver of compliance; and § 61.13 emission tests and waivers of emission tests. Each benzene source (existing or new) affected by the standards signed on February 27, 1990, must file initial information reports within the first 90 days of the effective date (March 7, 1990). These three sections are included to assist EPA enforcement personnel in complying with these requirements.

Section 5 presents important sections i.e., applicability, definitions, and standards of the promulgated regulations for each source category. For detailed information on monitoring, recordkeeping, reporting, and test method requirements, one must consult the Federal Register notice (55 FR 8292) announcing the rulemaking for various benzene sources.

Section 6 presents the SIC codes for the affected source categories and a list of sources that were identified in the development of the standards. It should be noted, however, that the list may not be accurate or complete as the databases used were old and may not reflect current operations at many facilities. This list is presented here merely as a guideline of the sources that might be affected.

In Section 7 the interrelationship of the benzene waste standard with other EPA standards under the CAA, RCRA, CERCLA and FWPCA is discussed. Regulations promulgated under other Acts require treatment of the waste to

remove or destroy benzene, they do not ensure control of air emissions from management of the waste before treatment or from the treatment process. This section describes how the requirements generally relate to other standards and the steps taken to make the requirements as compatible.

Lastly, Section 8 presents an implementation plan to assist the EPA regions in enforcing these regulations. A detailed compliance monitoring strategy will be developed through standard procedures.

Appendix A presents an example of a compliance status information form that each facility in both source categories should fill out and submit to EPA within 90 days of the effective date of the rule.

Appendix B presents a list of people at OAQPS who can be contacted regarding the technical as well as regulatory aspects of the promulgated standards.

Section 2 Press Release

The final rules were issued on February 27, 1990. A copy of the press release announcing these final rules is included here.

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United States Environmental Protection Agency

Communications And Public Affairs (A-107)

EPA Environmental News

TUESDAY, FEBRUARY 27, 1990

EPA ISSUES NEW RULES REDUCING BENZENE AIR EMISSIONS 93 PERCENT

Dave Ryan (202) 382-2981

The U.S. Environmental Protection Agency issued final rules today to cut air emissions of the hazardous pollutant benzene by about 10,000 tons a year from certain industrial sources.

"Today's rules will lower emissions of benzene from certain industries by 93 percent and protect public health from the risks associated with industrial benzene exposure," said William K. Reilly, EPA Administrator. "I urge Congress to take prompt action to pass President Bush's clean air proposal, which contains a stronger provision than under current law to cut toxic air emissions."

Benzene is a major industrial chemical. It is classified by EPA as a known human carcinogen, because of its link to adult leukemia.

Benzene is used to manufacture a wide variety of products including plastics, insecticides and polyurethane foam. Benzene emissions are also present in automobile exhaust and auto refueling operations, cigarette smoke and many consumer products.

Exposure to industrial benzene emissions represents an important long-term (chronic) health concern, particularly for people living close to major sources of emissions.

Under Section 112, the hazardous air pollutant section of the current Clean Air Act, EPA seeks to provide the maximum feasible protection against risks to health by protecting the greatest number of people possible--living anywhere in the United States--to an individual lifetime risk of developing cancer no higher than approximately one in a million.

EPA also seeks to limit to no higher than approximately one in 10,000 the estimated risk that people living near a plant would have if they were exposed to the maximum pollutant concentrations possible for 70 years. Today's regulations will result in over 99 percent of the exposed population living near certain plants facing a maximum individual risk of less than one chance in a million.

EPA estimates that about half of all Americans are exposed to benzene emissions from industrial sources. For the great majority of the population, the predicted cancer risk is very low (less than one chance in a million based on lifetime exposure). The cancer risks from all the sources covered by EPA under the final rules issued today and last September currently amount to an estimated excess incidence of leukemia of approximately four cases per year nationwide. The rules would reduce the excess incidence to one case every three years, a 90-percent reduction.

The benzene rules are the third set of hazardous air pollutant regulations issued (after those set for other benzene categories last August and radionuclides in December) since the landmark 1987 ruling by the Federal Appeals Court of Washington, D.C., on vinyl chloride. In that decision, the court mandated a two-step process for regulating hazardous air pollutants under Section 112.

In the first step, EPA must establish an "acceptable" level of risk based solely on health considerations. In the second step, the Agency must then set enforceable standards that provide an "ample margin of safety" to the public. In determining the ample margin of safety, EPA may take pollution control costs and technological feasibility into consideration. The final enforceable standard developed in the second step can be tougher, but not weaker than, the "acceptable" level of risk developed in the first step.

On Sept. 14, 1989 EPA published final rules in the Federal Register reducing benzene emissions 97 percent from coke by-product recovery plants and also requiring significant benzene emission reductions from benzene storage tanks.

In the same Sept. 14 Federal Register notice, EPA proposed benzene emission reduction rules for: benzene waste operations; the loading of benzene into railroad tank cars, trucks, and marine vessels (benzene transfer operations); industrial solvent use in activities such as rubber tire manufacturing; and gasoline terminals, bulk plants and service stations in the gasoline marketing system.

EPA is today announcing final rules for benzene waste operations and benzene transfer operations. After careful review,

the Agency has decided not to regulate gasoline marketing and industrial solvent sources at this time.

Benzene transfer operations include the loading process at production facilities and bulk terminals where benzene is loaded into rail tank cars, tank trucks and marine vessels. EPA estimates there are 110 transfer operation sources emitting about 5,000 tons of benzene a year. The rules call for vapor collection and vapor recovery systems and other add-on control devices such as incinerators, carbon adsorbers, flares and condensers. Benzene emissions from benzene transfer operations will be reduced approximately 98 percent, to 300 tons per year. Cancer incidence will be reduced from one additional case per year to one case every 50 years, and maximum individual risk will be reduced from one chance in 165 to one chance in 25,000. The capital costs for meeting this standard are $167 million and annualized costs are $30 million.

EPA estimates that benzene waste operations at chemical plants, petroleum refineries, coke by-product recovery plants and commercial treatment, storage and disposal facilities emit approximately 5,800 tons of benzene each year at about 390 facilities. Today's rules would require covers or enclosures, treatment processes and waste incineration to reduce emissions at these facilities to 275 tons per year, a 93-percent reduction. EPA estimates that cancer cases attributible to these sources would be reduced from one case every one and one-half years to one case every 20 years. Maximum individual lifetime risk would be reduced from one chance in 500 to less than one chance in 10,000. The capital costs of meeting the standard are estimated to be $250 million and annualized costs are estimated at about $90 million.

The industrial solvent use category is not being regulated at this time. Benzene is used as a distilling and extracting agent, a reaction solvent and a dissolver of other substances. EPA estimates there are only 10 plants in the pharmaceutical, general organic synthetics and alcohol manufacturing industries that use and emit benzene as a solvent. In addition, benzene is present in trace quantities in solvents used in the manufacture of rubber tires. Various occupational health and other regulations have gone into effect in recent years that have reduced or completely stopped benzene solvent use in many plants. The capital cost of meeting the proposed requirements was estimated to be $23 million and the annualized cost was estimated at $12 million. EPA received information after the September proposal showing that its emission estimates were based on incorrect assumptions and that it had overstated benzene emissions. EPA also received information showing that risks are much lower than it had previously estimated. EPA has decided that the cost of additional control on the solvent use

industry is disproportionately large in comparison to the small additional emission and risk reduction achieved.

EPA has also decided not to regulate the gasoline marketing industry at this time. Gasoline marketing refers to the storage and transfer of gasoline as it moves from bulk terminal to the gasoline service station storage tank. The major benzene emission sources in this system are bulk gasoline terminals, bulk gasoline plants, service stations and delivery tank trucks. This category and the proposed rules last September did not include the refueling of vehicles at the pump by consumers. The proposed rule only dealt with the filling of underground storage tanks at service stations by tank trucks. The vehicle-refueling process is addressed separately as a major component of EPA's strategy to reduce volatile organic compound emissions contributing to urban ground-level ozone (smog). President Bush's clean air proposal requires many of the areas not meeting the smog standard to apply what is known as "Stage II Vapor Recovery," which controls the emissions at the pump.

For each of the gasoline marketing source categories, existing controls result in the maximum individual risk being less than EPA's acceptable risk benchmark of approximately one in 10,000 maximum individual risk. In considering whether further regulations beyond existing controls would be necessary in order to provide an ample margin of safety, EPA reviewed cancer incidence reductions, control costs and the potential population at risk greater than one in one million. The incidence reduction for each of the gasoline marketing categories would be very low, in the range of 0.03 to 0.07 of a case per year. For the gasoline marketing categories, the capital cost would be approximately $1 billion, with annualized costs of $130 million. The majority of the health risk reduction would occur in the population exposed at risks less than one in one million. EPA, therefore, has decided not to regulate the gasoline marketing categories because the cost of additional control was considered disproportionately high, relative to the small health benefits, and existing controls provide an ample margin of safety.

This decision on gasoline marketing does not preclude different means of benzene control in the future, the Agency noted. For example, EPA plans within the next several months to issue an Advance Notice of Proposed Rulemaking for the control of air toxics, including benzene specifically, through gasoline and diesel reformulation. Also, President Bush's proposed Clean Air Act amendments include a major initiative on alternative fuels, under which EPA would set performance standards for clean-fuel vehicles designed to reduce benzene and other toxic air emissions. The President's proposal would also require that service station owners

(more)

in certain parts of the country install Stage II vapor recovery systems. In addition, the President's proposal also authorizes regulation of air toxic emissions from mobile sources.

For further information on the final benzene rules, contact either Doug Bell at 919-541-5568, or Dr. Janet Meyer at 919-541-5254, Standards Development Branch, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711. For information concerning the health effects of benzene and risk assessment, contact Scott Voorhees at 919-541-5348, Pollutant Assessment Branch, Emission Standards Division (MD-13) at the above address.

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# # #

Section 3 Summary of Regulations

This section presents a summary of the regulations for benzene transfer and waste operations. Figure 1 is a simple diagram that assists in the determination of the applicability of a transfer operation to the promulgated standards. Similarly, Figure 2 is also a flow diagram to assist in determining the applicability of a waste operation to the standards. Once it is determined that standards do apply, then benzene emissions from all the affected facility must be controlled according to the requirements of the standards.

Table 1 presents a summary of general requirements for waste streams at a facility which must be controlled under the standards. These requirements are for process wastewater streams and other streams that are not considered process wastewaters. The regulations provide alternative means of compliance. For process wastewater streams, the alternative means of compliance allow the facility owner to select the wastewater streams for treatment as long as the total annual benzene quantity is <1 Mg for all treated and untreated process wastewater streams. Figure 3 is a simple flow diagram describing this alternative standard for process wastewater streams. Table 2 presents a summary of benzene air emission control requirements prior to and during treatment of an affected waste stream.

Figure 4 is an example of a form that each benzene waste operation facility could fill out to determine the waste stream characteristics. Enforcement compliance personnel might want to send this form to each facility and suggest that it would be helpful to use it. By completing this form, the total annual quantity of benzene in the wastes would be easily determined and the applicability of the standards could also be established.

The summary of standards describes briefly the highlights of the standards. It describes the applicability, exemptions from the rules, the provisions of the standards, reporting and recordkeeping requirements, and the compliance dates by which the control system should be installed and operational. The information gathering, reporting, and recordkeeping requirements of various degree depending on the applicability of the standards begin from the effective date. For complete details on several other requirements such as control device installation, testing, and monitoring etc., the final regulations as published must be followed.

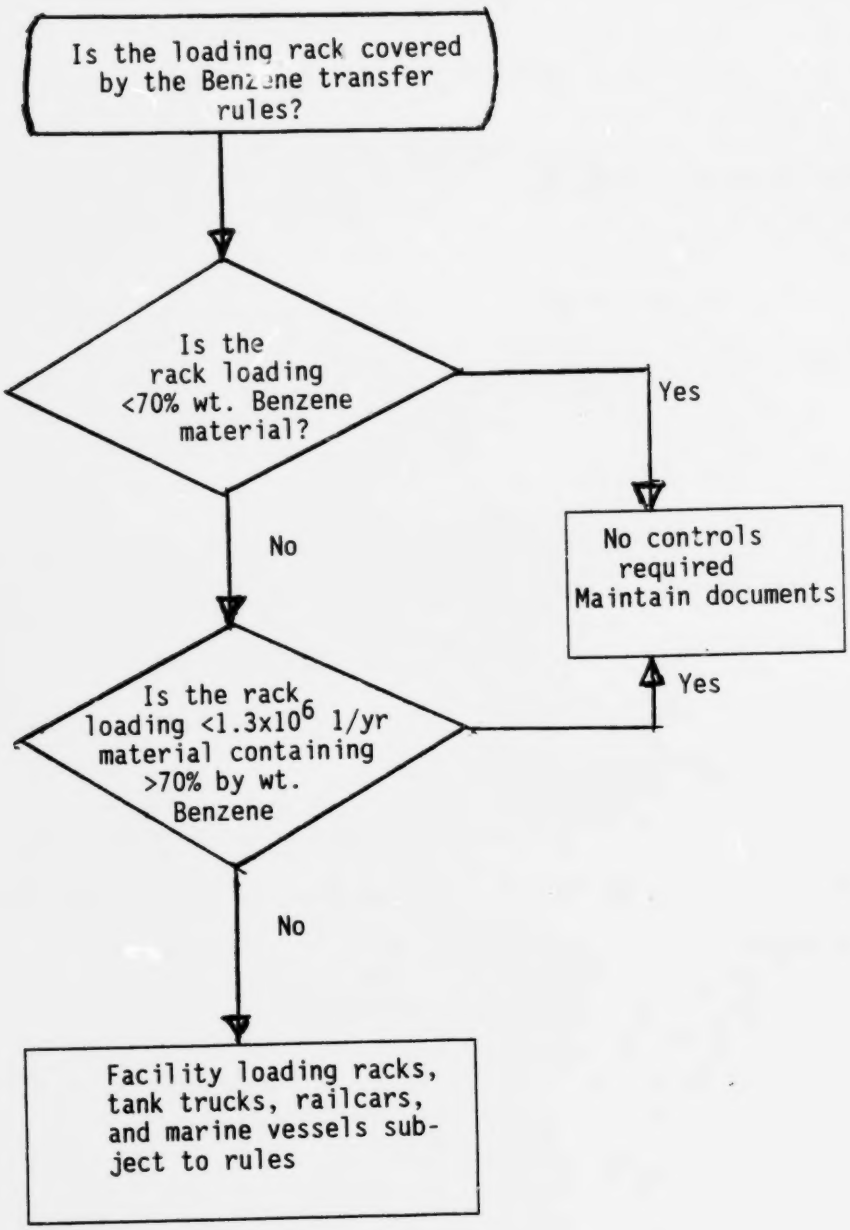

Figure 1. Regulatory Approach for Benzene Transfer Operations

Summary of Standards

Benzene Transfer Operations

- **The standard applies to:**

  - all loading racks where benzene is loaded into tank trucks, railcars, or marine vessels at each production facility and each bulk terminal.

- **The standard exempts:**

  - all racks loading only liquids containing <70% wt. benzene, or
  - facilities loading $<1.3 \times 10^6$ l of ≥70% wt. benzene annually from the collection and control provisions. These facilities must file a report documenting the annual quantity and weight percent of benzene loaded in the first year of the standard.
  - facilities handling benzene laden waste, gasoline, and benzene-laden liquid from coke by-product recovery plants from all the provisions in the standard.

o **The standard requires:**

- facilities loading $\geq 1.3 \times 10^6$ l/yr of $\geq$70% wt. benzene to equip each loading rack with a vapor collection system and route emissions from the collection system to a 98% efficient control device.
- loading be limited to vapor-tight tank trucks, railcars, or marine vessels.
- each affected facility to obtain a copy of the vapor-tightness documentation prior to the loading of liquid into tank truck, railcar, or marine vessel. The documentation must be updated at least once annually.
- tank trucks and railcars to be tested for vapor tightness using Method 27 of 40 CFR Part 60, App. A, and marine vessel be tested using Method 21 of App. A (test method in section 61.304(f), Subpart BB may be used in lieu of test Method 21). In lieu of vapor-tightness documentation, marine vessels may be loaded at negative pressure i.e., with a benzene product tank below atmospheric pressure.
- that the pressure during loading will not cause pressure-vacuum vents to open, and
- that inspections for leak and repair of identified leaks are conducted in a timely manner.

- **Reporting and Recordkeeping Requirements:**

  - a report is required the first year of the wt. % benzene loaded, type vessel, and annual quantity loaded from facilities loading $<1.3 \times 10^6$ l/yr benzene or loading only <70% wt. benzene liquids.

  - all performance tests and monitoring results to be maintained for at least two years. The vapor-tightness documentation for all tank trucks, railcars, and marine vessels be maintained in a permanent file.

  - quarterly reports of malfunctions as defined in § 61.305(f), Subpart BB. The initial quarterly report would be filed within 90 days of the effective date of the standard or 90 days after the startup date, if the startup is after the effective date.

- **Compliance dates:**

  - all tank truck and railcar loading racks at each affected facility must be in compliance with the standard within 90 days of the effective date of the standard, or obtain a waiver of compliance as provided for in §61.11 of the General Provisions (see Section 4). Tank trucks and railcars must have vapor tightness documentation.

  - the standard requires marine vessels to be in compliance by February 28, 1991 (this date may change in the future depending on the status of Coast Guard Regulations). The loading racks used to load marine vessels must be in compliance by February 28, 1991.

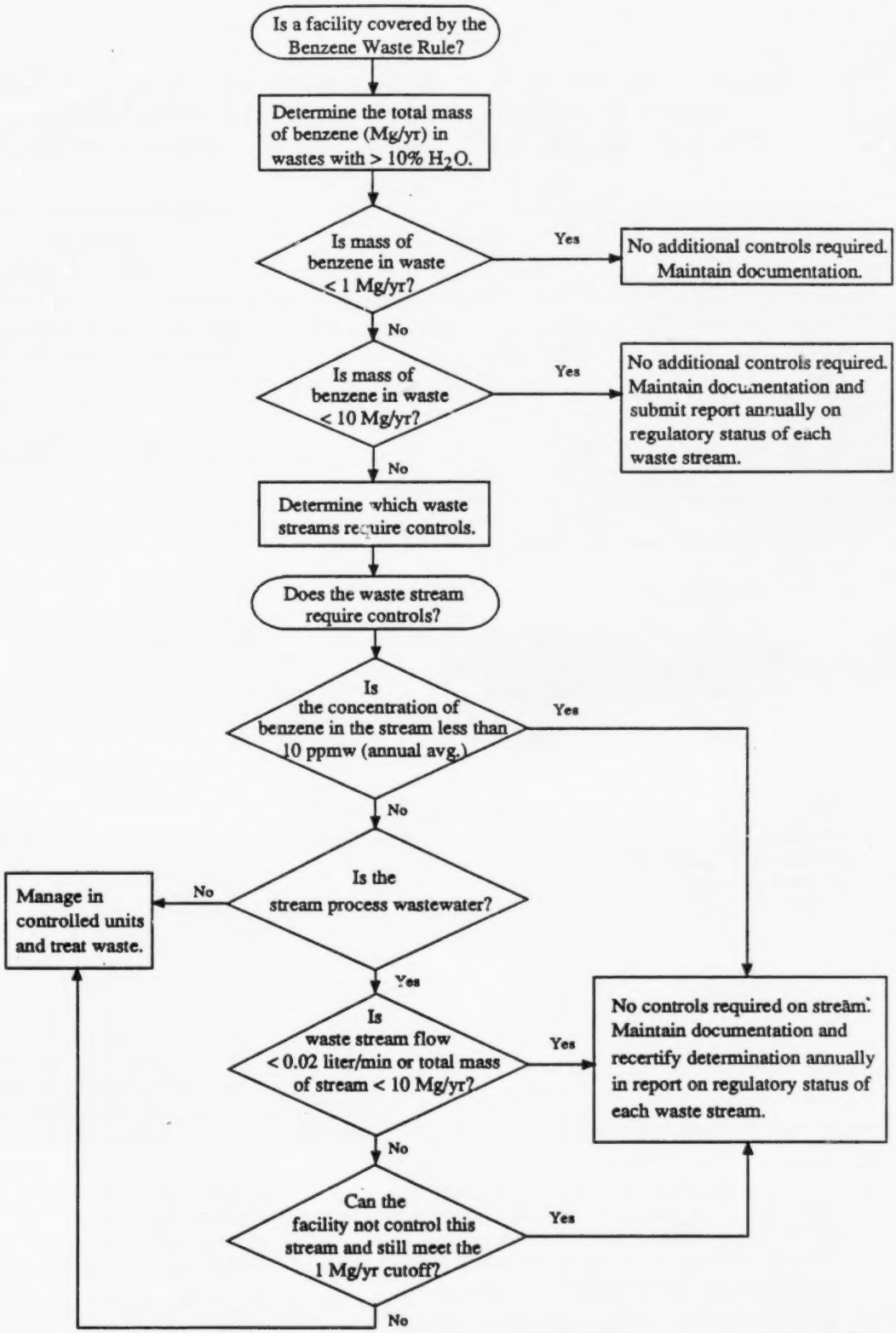
Is a facility covered by the Benzene Waste Rule?
Determine the total mass of benzene (Mg/yr) in wastes with > 10% H_2O.
Is mass of benzene in waste ≤ 1 Mg/yr?
Yes
No additional controls required. Maintain documentation.
No
Is mass of benzene in waste ≤ 10 Mg/yr?
Yes
No additional controls required. Maintain documentation and submit report annually on regulatory status of each waste stream.
No
Determine which waste streams require controls.
Does the waste stream require controls?
Is the concentration of benzene in the stream less than 10 ppmw (annual avg.)
Yes
No
Is the stream process wastewater?
No
Manage in controlled units and treat waste.
Yes
Is waste stream flow < 0.02 liter/min or total mass of stream < 10 Mg/yr?
Yes
No controls required on stream. Maintain documentation and recertify determination annually in report on regulatory status of each waste stream.
No
Can the facility not control this stream and still meet the 1 Mg/yr cutoff?
Yes
No

Figure 2. Regulatory approach for benzene waste operations.

Table 1. BENZENE WASTE OPERATIONS NESHAP (40 CFR 61 Subpart FF)
SUMMARY OF GENERAL STANDARDS FOR AFFECTED WASTE STREAMS
AT A FACILITY WITH A TOTAL ANNUAL BENZENE QUANTITY ≥ 10 Mg/yr

Waste Stream Category	Affected Waste Stream	General Requirements
Standard for waste streams other than process wastewater[a] streams [refer to §61.342(c)(1)]	Contains 10 ppmw or more benzene[b] [refer to §61.342(c)(2)]	Treat each affected waste stream to remove or destroy benzene[c]; and control benzene air emissions from management of waste prior to and during treatment[d]
Standard for process wastewater streams [refer to §61.342(c)(1)]	Waste stream: A. contains ≥ 10 ppmw[b] benzene and flow rate is ≥ 0.02 liter/min or B. contains ≥ 10 ppmw[b] benzene and waste quantity is ≥ 10 Mg/yr [refer to §61.342(c)(2) and (c)(3)]	Treat each affected waste stream to remove or destroy benzene[c]; and control benzene air emissions from management of waste prior to and during treatment[d]
Alternative standard for process wastewater streams [refer to §61.342(d)]	All process wastewater streams at a facility	Owner or operator selects which process wastewater streams are treated[c] to achieve a total annual benzene quantity less than 1 Mg/yr from all treated and untreated process wastewater streams at the facility. Each treated waste stream is controlled for benzene air emissions from management of waste prior to and during treatment[d]

NOTES:

a. Process wastewater is defined in the regulation to mean water which comes in contact with benzene during manufacturing or processing operations conducted within a process unit. Process wastewater is not organic wastes, process fluids, product tank drawdown, cooling tower blowdown, stream trap condensate, or landfill leachate.

b. Determined on a flow-weighted annual average basis.

c. Waste stream must be treated to reduce the waste stream benzene content to meet specific levels listed in §61.348.

d. Benzene air emission control requirements for specific types of waste management units summarized in Table 2b.

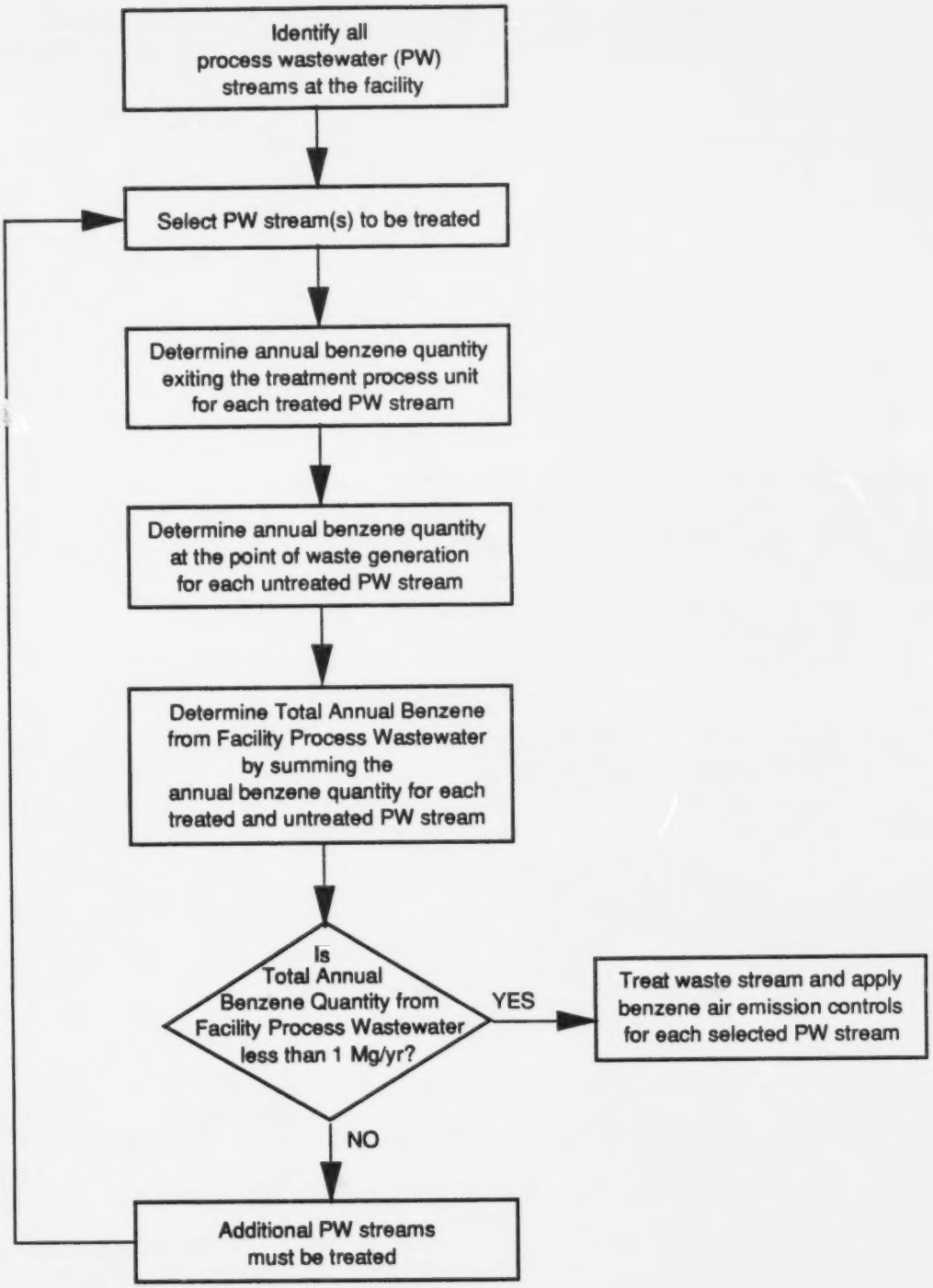
Identify all process wastewater (PW) streams at the facility
Select PW stream(s) to be treated
Determine annual benzene quantity exiting the treatment process unit for each treated PW stream
Determine annual benzene quantity at the point of waste generation for each untreated PW stream
Determine Total Annual Benzene from Facility Process Wastewater by summing the annual benzene quantity for each treated and untreated PW stream
Is Total Annual Benzene Quantity from Facility Process Wastewater less than 1 Mg/yr?
YES
Treat waste stream and apply benzene air emission controls for each selected PW stream
NO
Additional PW streams must be treated

Figure 3. Alternative Standard for Process Wastewater Streams

Table 2. BENZENE WASTE OPERATIONS NESHAP (40 CFR 61 Subpart FF)
SUMMARY OF BENZENE AIR EMISSION CONTROL REQUIREMENTS
PRIOR TO AND DURING TREATMENT OF AN AFFECTED WASTE STREAM

Waste Management Unit	Benzene Air Emission Control Requirement	Alternative Control Requirement[b]
Tank	Fixed-roof with closed vent system routed to control device[a] [refer to §61.343].	Internal or external floating roof [refer to §61.351]
Surface Impoundment	Cover with closed vent system routed to control device[a] [refer to §61.344]	none
Container used for benzene waste storage or transfer	Cover except when loading or unloading waste, and submerged fill of pumpable waste [refer to 61.345(a)(1) & (a)(2)]	none
Container used for benzene waste treatment	Cover with closed vent system routed to control device[a], and submerged fill of pumpable waste [refer to 61.345(a)(2) & (a)(3)]	none
Individual Drain System	Cover with closed vent system routed to control device[a] [refer to §61.346(a)]	Drains capped or use water seal controls, junction boxes use water seal controls, and sewer lines covered or enclosed [refer to §61.346(b)]
Oil-Water Separator	Fixed-roof with closed vent system routed to control device[a] [refer to §61.347]	Internal or external floating roof [refer to §61.352]
Treatment Process or Wastewater Treatment System Unit	Comply with the appropriate waste management unit standards[c] [refer to §61.348(a)(2) & (b)(1)]	Treatment process unit in compliance with other EPA regulations [refer to §61.348(d)]

NOTES:

a. Closed vent system must be designed and operated with no detectable emissions, and the control device must be designed and operated to reduce total organic emissions by at least 95% by weight [refer to §61.349].

b. An owner or operator may also request permission from the Administrator to use an alternative means of emission limitation pursuant to §61.353.

c. For example, if the treatment process is a tank, then the owner or operator must comply with the control requirements for a tank in §61.343 or §61.351.

BENZENE WASTE OPERATIONS WASTE STREAM REGULATORY STATUS

Facility Name: _____ Prepared By: _____ Date: _____ Page __ of ___

WASTE STREAM I.D.	Benzene Controls[a] (check one)		WASTE STREAM CHARACTERISTICS									
			Water Content (check one)		Waste Stream Type (check one)			Annual Waste Quantity (Mg/yr)	Benzene Concentration (ppmw)			Annual Benzene Quantity (Mg/yr)
									Range		Flow-Weighted Annual Average	
	Yes	No	≤ 10%	> 10%	Process Wastewater	Product Tank Drawdown or Landfill Leachate	Other		Lower Limit	Upper Limit		

a. Waste stream is treated and is controlled for benzene emissions prior to and during treatment in accordance with 40 CFR 61 Subpart FF.

Figure 4. Example Table Format for Reporting Waste Stream Regulatory Status

Summary of Standards

Benzene Waste Operations

- **The standard applies to:**

  - owners or operators of chemical plants, petroleum refineries, and coke by-product recovery plants. Also commercial treatment, storage, and disposal facilities (TSDF) that receive wastes from the above facilities.

- **The standard exempts:**

  - specifically certain wastes such as in-process recycle streams (e.g., reflux from a distillation column and reboilers), segregated storm water runoff, and process offgases from all aspects of the standards.

  - facilities with <10 Mg/yr total benzene in the waste from any control requirements. The total annual benzene quantity from facility waste shall be determined in accordance with the procedures specified in § 61.355(a), Subpart FF.

  - facilities with <1 Mg/yr total benzene in the waste from any control requirements and most reporting requirements. These facilities must submit an initial report and maintain a record of the initial determination. No further action required unless total benzene waste quantity increases to 1 Mg/yr or more.

o **The standards also exempts:**

- facilities with >1 Mg/yr but <10 Mg/yr total benzene in the waste from any control requirements. These facilities must submit an initial report, maintain a record of documentation, and update and resubmit the report annually.

- waste streams having <10 ppmw benzene on an annual average basis. Knowledge of the waste or waste testing may be used to determine waste quantity as well as benzene concentration.

- process wastewater streams with a flow rate <0.02 l/min. or a total mass of waste <10 Mg/yr. Knowledge of the waste or waste testing may be used to demonstrate this requirement.

- process wastewater streams from control provisions even though they contain >10 ppm of benzene if the facility treats a sufficient number of process wastewater streams such that the total benzene in both the treated and untreated process wastewater is <1 Mg/yr. Treated process wastewater streams must meet the treatment requirements specified by this rule.

- **The standard requires:**

  - reduction of the concentration of benzene in the waste to a level <10 ppm, or

  - reduction of the concentration of benzene in the waste by 99% or greater, and

  - units in which wastes are managed prior to treatment to be controlled for air emissions as follows:

- tanks, surface impoundments, and oil-water separators must be equipped with a cover (such as fixed roof or enclosure) vented to a closed vent system and control device.

- containers must be covered and submerged fill loading must be used for pumpable wastes. The containers in which waste treatment is performed must also be vented to a closed vent system and control device.

- individual drain systems must be completely closed and equipped with a closed vent system and control device. As an alternative, individual drain systems can comply with both the control requirements of the NSPS for petroleum refinery waste water systems (40 CFR Part 60, Subpart QQQ) and control junction boxes either by installing water seals to isolate the junction boxes or venting the junction box to a closed vent system and control device.

o **The standard also requires:**

- treatment processes must be operated to either remove benzene from a waste stream to <10 ppmw on a flow-weighted annual average, remove benzene by 99% or more on a mass basis, or destroy in a combustion unit with an efficiency of >99% for benzene.

- control devices to be designed and operated to remove or destroy 95% of the organics in the vent system.

- engineering calculations or emission testing to demonstrate compliance with the performance standards.

- monitoring of process parameters indicative of treatment device performance to ensure proper operation and maintenance.

- covers and closed vent systems to be operated with "no detectable emissions," which means the instrument reading using EPA Method 21 must be below 500 ppm above background. Measurements for detectable emission must be conducted initially and annually. Visual inspections of covers must be conducted initially and quarterly.

- **Reporting and Recordkeeping Requirements:**

  - within 90 days of effective date, owners or operators of facilities subject to standards must complete the initial determination of the amount of benzene in waste managed and also determine which waste streams must be controlled. This determination may be made through waste testing or through "knowledge of the waste" that is documented. Any benzene in waste streams containing <10% water is excluded from this determination. This report must describe the regulatory status of each waste stream. A record of these determinations must be maintained at each facility, including documentation to support a conclusion that controls are not required. (See Figure 4 as an example of a form to be completed)
  - monitoring of control device parameters or treatment device performance. Quarterly reports of when monitored parameters exceeded acceptable levels.
  - quarterly reports certifying all required inspections have been carried out.
  - annual report of all inspections where detectable emissions (>500 ppm) are measured or visual inspections of gaps, tears etc. are identified. The report shall include information on the repairs or corrective actions.

- **Compliance Dates:**

  - facilities that must install controls to meet control requirements must complete installation and begin operating control system within two years of the effective date. (**Note**: This is an industry-wide waiver of compliance being provided because of time needed to evaluate, design, bid, and construct a control system.)

Section 4 General Provisions

General provisions are presented in Subpart A of 40 CFR Part 61, from § 61.01 to § 61.19. These provisions should be consulted whenever there are questions regarding applicability or implementation of the standard. In this section, summaries of §§ 61.10 (source reporting and waiver requests), 61.11 (waiver of compliance), and 61.13 (emission tests and waivers of emission tests) are presented. The reason for explaining waiver requirements is that all new and existing sources affected by the standards promulgated will be required to provide source information to EPA within 90 days of the effective date of the rule. In order to enable industry personnel to meet these reporting requirements or to properly request a waiver, the information in §§ 61.10 and 61.11 is summarized here.

In brief, the Clean Air Act at § 112(c)(1)(B)(ii) gives the statutory requirements for granting a waiver. The Administrator may grant a waiver if he or she finds that the source needs the time to install controls and that the source will take steps during the period of the waiver to protect public health from imminent danger. At § 112(c)(2), the Act allows the President to exempt a source if he or she finds that the technology does not exist to implement the standard and the source must operate for reasons of national security. Only an exemption granted by the President may be extended for more than two years. Please note that the power to grant a temporary waiver of compliance has been delegated from the Administrator to the Regional Administrators. On the other hand, the power to grant an exemption for

national security under § 112(c)(2) has not been delegated from the President to the Administrator.

The requirements for compliance and testing waivers are found at 40 CFR Part §§ 61.10, 11, and 13. A brief description of what should be included in an initial compliance report and a waiver request is found in Appendix A to Part 61, which is reprinted as Appendix A of this document. Given that the authority to grant compliance and test waivers has been delegated to the Regional Administrators, Stationary Source Compliance Division (SSCD) expects the regional compliance offices to process the waivers to completion and to record any waivers in compliance data system (CDS). SSCD provides the following pages as summaries of §§ 61.10, 11, and 13 to assist EPA compliance personnel in uniformly processing any requests for waivers they may receive.

It is important to note that, for waste operations, an owner or operator of an existing facility has up to two years to comply with the standards if they can not comply within 90 days of the effective date. They are not required to apply for a waiver. In contrast, for the benzene transfer operations, an owner or operator of an existing facility can request a waiver of compliance if he or she determines that they can not comply with the regulations within 90 days of the effective date. Therefore, there may be some facilities that will request waiver of compliance with the standards. However, the loading racks that load benzene material into marine vessels have

up to February 28, 1991, to comply with these standards. The affected facility is not required to request a waiver of compliance till this date for the marine vessel loading rack.

SOURCE REPORTING AND COMPLIANCE WAIVERS
40 CFR 61.10 and 61.11*

1. **WITHIN 90 DAYS OF THE EFFECTIVE DATE OF A NESHAP:**

. The owner or operator of each existing source or new source which had an initial start-up before the effective date shall provide the information required at 40 CFR 61.10(a) in writing to the Administrator. This information is self-explanatory and is used to identify the affected sources.

2. **IF THE SOURCE CANNOT COMPLY WITH THE STANDARD WITHIN 90 DAYS OF THE EFFECTIVE DATE:**

. The owner or operator may request a waiver of compliance for a period not to exceed 2 years after the effective date.

3. **IF THE OWNER OR OPERATOR OF A SOURCE DECIDES TO SEEK A WAIVER OF COMPLIANCE:**

. The owner must make the request in writing and provide the information required at 40 CFR 61.10(b). This information is self-explanatory and describes the steps to be taken to bring the source into compliance.

*Please refer to the most recent CFR for details.

4. IF THE OWNER OR OPERATOR OF A SOURCE SUBMITS A REQUEST FOR A WAIVER OF COMPLIANCE FOR A NESHAP:

. The rule for granting or denying compliance waivers is found at 40 CFR 61.11.

. The rule does not mandate a deadline for submitting the request for a waiver compliance, but practically speaking, 90 days should be the limit by which a source submits such a request.

. The rule does not mandate as to when the EPA must make a decision regarding the request for a waiver of compliance, but SSCD recommends that a waiver request be reviewed and a decision to deny or grant the request be made within 60 days of receiving the request.

5. ONCE EPA DECIDES TO DENY A REQUEST, IT MUST:

. notify the owner or operator of its intention to issue a denial.

. identify to the owner or operator the information and findings on which the denial is based.

. specify a time limit by which the owner or operator must be given an opportunity to present additional information or arguments before a final decision is made. **SSCD recommends 30 days as an appropriate time limit.**

. A final decision to deny a waiver request must be made within 60 days after presentation of additional information or argument, or within 60 days after the final date specified for the presentation of additional information or argument, if no presentation is made. This time period is mandated at 40 CFR 61.11(e).

SUGGESTED TIMELINE FOR COMPLIANCE WAIVERS

* 90 DAYS AFTER EFFECTIVE DATE FOR RULE:

  Source should submit request for compliance waiver.

* 60 DAYS LATER:

  EPA makes initial determination. If the decision is to approve the request, issue a waiver as required at 40 CFR 61.11(b).

  If the decision is to disapprove the request, notify the source's owner or operator and allow for additional information to be submitted within 30 days.

* 30 DAYS LATER:

  Owner/operator submits additional information for consideration in processing waiver request.

* 60 DAYS LATER:

  Final decision must be made and a denial or approval of the waiver request must be issued.

EMISSION TESTS AND WAIVER OF EMISSION TESTS

40 CFR 61.13*

1. FOR EXISTING SOURCES OR SOURCES WITH AN INITIAL START-UP DATE BEFORE THE DATE OF THE EFFECTIVE RULE, emission testing must take place within 90 days of the effective date of the rule.

2. FOR SOURCES WITH AN INITIAL START-UP DATE AFTER THE DATE OF THE EFFECTIVE RULE, emission testing must take place within 90 days of the start-up date.

3. THE OWNER OR OPERATOR OF A SOURCE must give EPA at least 30 days notice before an emission test is to be performed to allow EPA the opportunity to have an observer present at the site.

4. SAMPLES MUST BE ANALYZED AND EMISSIONS DETERMINED within 30 days of an emission test. The owner or operator must submit the results of the test to the Administrator by registered letter by close of business (COB) on the 31st day after the test.

5. FOR SOURCES SEEKING A WAIVER OF EMISSION TESTING, the source must submit a request for a waiver under 40 CFR 61.13. The request for an emission test waiver must be submitted with the information required at 40 CFR 61.10 or 61.09

*See 40 CFR 61.13 for the complete rule.

6. A WAIVER MAY BE GRANTED, IF EPA BELIEVES:

   - the source is meeting the standard, or

   - the source is operating under a waiver of compliance, or

   - the owner or operator of the source has sought a waiver of compliance that is still under consideration by the Administrator.

7. NOTICE MUST BE GIVEN IF THE EMISSION TESTING WAIVER IS CANCELLED.

TIMELINE FOR EMISSION TESTING

NO LATER THAN:

* 30 DAYS BEFORE TEST (30 DAYS AFTER EFFECTIVE DATE OF RULE OR START-UP DATE[a]) - source must notify EPA of pending emission test.

* 90 DAYS AFTER EFFECTIVE DATE OF RULE OR START-UP DATE - source must conduct emission test or have submitted a request for a waiver of emission testing.

* 30 DAYS AFTER DATE OF EMISSION TEST - source must have samples analyzed and determined emissions.

* 31 DAYS AFTER DATE OF EMISSION TEST - source must have submitted determination of emission test to EPA by registered letter.

* 2 YEARS AFTER DATE OF EMISSION TEST - source must retain record of emission tests and other data needed to determine emissions for inspection by EPA upon request.

[a]See 40 CFR 61.13(a) for exact determination.

Section 5 Regulations for Each Source Category

The applicability, definitions, and the standards sections of the rulemaking for each source category are presented here in detail. These are as they appear in the Federal Register notice for the promulgation of these benzene standards. These are presented here to assist in the clarification of the rules as to their applicability, source definition, or the standards. These can be referred to whenever questions arise after reviewing the summary of standards presented earlier. However, other sections covering the monitoring of operations, test methods, procedures, and compliance provisions, and recordkeeping and reporting requirements are not presented in detail here. They can be found in the printed Federal Register notice and should be referred to whenever questions such as the waivers, knowledge of waste (waste operations), or design evaluation of control device performance etc., arise.

Subpart BB - National Emission Standard for Benzene Emissions from Benzene Transfer Operations

§ 61.300 Applicability

(a) The affected facility to which this subpart applies is the total of all loading racks at which benzene is loaded into tank trucks, railcars, or marine vessels at each benzene production facility and each bulk terminal. However, specifically exempted from this regulation are loading racks at which only the following are loaded: benzene-laden waste (covered under Subpart FF of this part), gasoline, or benzene-laden liquid from coke by-product recovery plants.

(b) Any affected facility under paragraph (a) of this section which loads only liquid containing less than 70 weight-percent benzene is exempt from the requirements of this subpart, except for the recordkeeping and reporting requirements in §61.305(i).

(c) Any affected facility under paragraph (a) of this section shall comply with the standards in §61.302 at each loading rack that is handling a liquid containing 70 weight-percent or more benzene.

(d) Any affected facility under paragraph (a) of this section whose annual benzene loading is less than 1.3 million liters of 70 weight-percent or more benzene is exempt from the requirements of this subpart, except for the recordkeeping and reporting requirements in §61.305(i).

(e) The owner or operator of an affected facility, as defined in §61.300(a) that loads a marine vessel shall be in compliance with the provisions of this subpart on and after February 28, 1991. If an affected facility that loads a marine vessel also loads a tank truck or railcar, the marine vessel loading racks shall be in compliance with the provisions of this subpart on and after February 28, 1991, while the tank truck loading racks and the railcar loading racks shall be in compliance as required by §61.12.

§ 61.301 Definitions

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act, or in Subpart A or Subpart V of Part 61.

"Bulk terminal" means any facility which receives liquid product containing benzene by pipelines, marine vessels, tank trucks, or railcars, and loads the product for further distribution into tank trucks, railcars, or marine vessels.

"Car-sealed" means having a seal that is placed on the device used to change the position of a valve (e.g., from open to closed) such that the position of the valve cannot be changed without breaking the seal and requiring the replacement of the old seal, once broken, with a new seal.

"Control device" means all equipment used for recovering or oxidizing benzene vapors displaced from the affected facility.

"Incinerator" means any enclosed combustion device that is used for destroying organic compounds and that does not extract energy in the form of steam or process heat. These devices do not rely on the heating value of the waste gas to sustain efficient combustion. Auxiliary fuel is burned in the device and the heat from the fuel flame heats the waste gas to combustion temperature. Temperature is controlled by controlling combustion air or fuel.

"Leak" means any instrument reading of 10,000 ppmv or greater using Method 21 of 40 CFR Part 60, Appendix A.

"Loading cycle" means the time period from the beginning of filling a tank truck, railcar, or marine vessel until flow to the control device ceases, as measured by the flow indicator.

"Loading rack" means the loading arms, pumps, meters, shutoff valves, relief valves, and other piping and valves necessary to fill tank trucks, railcars, or marine vessels.

"Marine vessel" means any tank ship or tank barge which transports liquid product such as benzene.

"Nonvapor tight" means any tank truck, railcar, or marine vessel that does not pass the required vapor-tightness test.

"Process heater" means a device that transfers heat liberated by burning fuel to fluids contained in tubes, except water that is heated to produce steam.

"Steam generating unit" means any enclosed combustion device that uses fuel energy in the form of steam.

"Vapor collection system" means any equipment located at the affected facility used for containing benzene vapors displaced during the loading of tank trucks, railcars, or marine vessels. This does not include the vapor collection system that is part of any tank truck, railcar, or marine vessel vapor collection manifold system.

"Vapor-tight marine vessel" means a marine vessel with a benzene product tank that has been demonstrated within the preceding 12 months to have no leaks. This demonstration shall be made using Method 21 of Part 60, Appendix A, during the last 20 percent of loading and during a period when the vessel is being loaded at its maximum loading rate. A reading of greater than 10,000 ppm as methane shall constitute a leak. As an alternative, a marine vessel owner or operator may use the vapor-tightness test described in §61.304(f) to demonstrate vapor tightness. A marine vessel operated at negative pressure is assumed to be vapor-tight for the purpose of this standard.

"Vapor-tight tank truck" or "vapor-tight railcar" means a tank truck or railcar for which it has been demonstrated within the preceding 12 months that its product tank will sustain a pressure change of not more than 750 pascals within 5 minutes after it is pressurized to a minimum of 4,500 pascals. This capability is to be demonstrated using the pressure test procedure specified in Method 27 of Part 60, Appendix A, and a pressure measurement device which has a precision of $\pm$2.5 mm water and which is capable of measuring above the pressure at which the tank truck or railcar is to be tested for vapor tightness.

§ 61.302 Standards

(a) The owner or operator of an affected facility shall equip each loading rack with a vapor collection system that is:

(1) Designed to collect all benzene vapors displaced from tank trucks, railcars, or marine vessels during loading, and

(2) Designed to prevent any benzene vapors collected at one loading rack from passing through another loading rack to the atmosphere.

(b) The owner or operator of an affected facility shall install a control device and reduce benzene emissions routed to the atmosphere through the control device by 98 weight percent. If a boiler or process heater is used to comply with the percent reduction requirement, then the vent stream shall be introduced into the flame zone of such a device.

(c) The owner or operator of an affected facility shall operate any flare used to comply with paragraph (b) of this section in accordance with the requirements of §60.18(b) through (f).

(d) The owner or operator of an affected facility shall limit loading of benzene into vapor-tight tank trucks and vapor-tight railcars using the following procedures:

(1) The owner or operator shall obtain the vapor-tightness documentation described in §61.305(h) for each tank truck or railcar loaded at the affected facility. The test date in the documentation must be within the preceding 12 months. The vapor-tightness test to be used for tank trucks and railcars is Method 27 of Part 60, Appendix A.

(2) The owner or operator shall cross-check the identification number for each tank truck or railcar to be loaded with the file of vapor-tightness documentation before the corresponding tank truck or railcar is loaded. If no documentation is on file, the owner or operator shall obtain a copy of the information from the tank truck or railcar operator before the tank truck or railcar is loaded.

(3) Alternate procedures to those described in paragraphs (d)(1) and (2) of this section may be used upon application to, and approval by, the Administrator.

(e) The owner or operator of an affected facility shall limit the loading of marine vessels to those vessels that are vapor tight as determined by either paragraph (e)(1), (e)(2), (e)(3) or (e)(4) of this section.

(1) The owner or operator of an affected facility shall ensure that each marine vessel is loaded with the benzene product tank below atmospheric pressure (i.e., at negative pressure). If the pressure is measured at the interface between the shoreside vapor collection pipe and the marine vessel

vapor line, the pressure measured according to the procedures in §61.303(f) must be below atmospheric pressure.

(2) The owner or operator of an affected facility shall use the following procedure to obtain the vapor-tightness documentation described in §61.305(h). The vapor-tightness test for marine vessels is Method 21 of Part 60, Appendix A, and shall be applied to any potential sources of vapor leaks. A reading of 10,000 ppmv or greater as methane shall constitute a leak.

(i) The owner or operator of an affected facility shall obtain the leak test documentation described in §61.305(h) for each marine vessel prior to loading, if available. The date of the test listed in the documentation must be within the 12 preceding months.

(ii) If there is no documentation of a successful leak test conducted on the marine vessel in the preceding 12 months, the owner or operator of an affected facility shall require that a leak test of the marine vessel be conducted during the final 20 percent of loading of the marine vessel or shall not load the vessel. The test shall be conducted when the marine vessel is being loaded at the maximum allowable loading rate.

(A) If no leak is detected, the owner or operator of an affected facility shall require that the documentation described in §61.305(h) is completed prior to departure of the vessel. The owner or operator of the affected facility shall retain a copy of the vapor-tightness documentation on file.

(B) If any leak is detected, the owner or operator of an affected facility shall require that the vapor-tightness failure be documented for the marine vessel owner or operator prior to departure of the vessel. The owner or operator of the affected facility shall retain a copy of the vapor-tightness documentation on file. Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without dry-docking the vessel. This equipment will be excluded from future Method 21 tests until repairs are effected. Repair of this equipment shall occur the next time the vessel is dry-docked.

(iii) If the marine vessel has failed its most recent vapor-tightness test as described in §61.302(e)(2)(ii), the owner or operator of the affected facility shall require that the owner or operator of the nonvapor-tight marine vessel provide documentation that the leaks detected during the previous vapor-tightness test have been repaired, or proof that repair is technically infeasible without dry-docking the vessel. Once the repair documentation has been provided, the owner or operator may load the marine vessel. The owner or operator shall require that the vapor-tightness test described in §61.302(e)(2)(ii) be conducted during loading, and shall retain a copy of the vapor-tightness documentation on file.

(3) The owner or operator of an affected facility shall obtain a copy of the marine vessel's vapor-tightness documentation described in §61.305(h)

for a test conducted within the preceding 12 months in accordance with §61.304(f).

(4) Alternate procedures to those described in paragraphs (e)(1), (e)(2) and (e)(3) of this section may be used upon application to, and approval by, the Administrator.

(f) The owner or operator of an affected facility shall limit loading of benzene to tank trucks, railcars, and marine vessels equipped with vapor collection equipment that is compatible with the affected facility's vapor collection system.

(g) The owner or operator of an affected facility shall limit loading of tank trucks, railcars, and marine vessels to tank trucks, railcars, and marine vessels whose collection systems are connected to the affected facility's vapor collection systems.

(h) The owner or operator of an affected facility shall ensure that the vapor collection and benzene loading equipment of tank trucks and railcars shall be designed and operated to prevent gauge pressure in the tank truck or railcar tank from exceeding, during loading, the initial pressure the tank was pressured up to and shown to be vapor tight at during the most recent vapor-tightness test using Method 27 of Part 60, Appendix A. This vapor-tightness test pressure is not to be exceeded when measured by the procedures specified in §61.304(c).

(i) The owner or operator of an affected facility shall ensure that no pressure-vacuum vent in the affected facility's vapor collection system for tank trucks and railcars shall begin to open at a system pressure less than the maximum pressure at which the tank truck or railcar is operated.

(j) The owner or operator of an affected facility shall ensure that the maximum normal operating pressure of the marine vessel's vapor collection equipment shall not exceed 0.8 times the relief set pressure of the pressure-vacuum vents. This level is not to be exceeded when measured by the procedures specified in §61.304(d).

(k) The owner or operator of an affected facility shall inspect the vapor collection system and the control device for detectable emissions, and shall repair any leaks detected, in accordance with §61.242-11(e) and (f). This inspection of the vapor collection system and control device shall be done during the loading of tank trucks, railcars, or marine vessels.

(l) Vent systems that contain valves that could divert a vent stream from a control device shall have car-sealed opened all valves in the vent system from the emission source to the control device, and car-sealed closed all valves in the vent system that would lead the vent stream to the atmosphere, either directly or indirectly, bypassing the control device.

Subpart FF - National Emission Standard for Benzene Waste Operations

§ 61.340 Applicability

(a) The provisions of this subpart apply to owners and operators of chemical manufacturing plants, coke by-product recovery plants, and petroleum refineries.

(b) The provisions of this subpart apply to owners and operators of facilities at which waste management units are used to treat, store, or dispose of waste generated by any facility listed in paragraph (a) of this section.

(c) At each facility identified in paragraph (a) or (b) of this section, the following waste is exempt from the requirements of this subpart:

(1) Waste in the form of gases or vapors that is emitted from process fluids;

(2) Waste that is contained in a segregated stormwater sewer system; and

(3) Waste that is not discharged from the process unit which generates the waste stream and, instead, is returned directly to the process. Examples of such waste are intermediate and product distillation reflux streams.

§ 61.341 Definitions

"Benzene concentration" means the fraction by weight of benzene in a waste as determined in accordance with the procedures specified in 61.355 of this subpart.

"Chemical manufacturing plant" means any facility engaged in the production of chemicals by chemical, thermal, physical, or biological processes for use as a product, co-product, by-product, or intermediate including but not limited to industrial organic chemicals, organic pesticide products, pharmaceutical preparations, paint and allied products, fertilizers, and agricultural chemicals. Examples of chemical manufacturing plants include facilities at which process units are operated to produce one or more of the following chemicals: benzenesulfonic acid, benzene, chlorobenzene, cumene, cyclohexane, ethylene, ethylbenzene, hydroquinone, linear alklylbenzene, nitrobenzene, resorcinol, sulfolane, or styrene.

"Closed-vent system" means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission source to a control device.

"Coke by-product recovery plant" means any facility designed and operated for the separation and recovery of coal tar derivatives (by-products) evolved from coal during the coking process of a coke oven battery.

"Container" means any portable waste management unit in which a material is stored, transported, treated, or otherwise handled. Examples of containers are drums, barrels, tank trucks, barges, dumpsters, tank cars, dump trucks, and ships.

"Control device" means an enclosed combustion device, vapor recovery system, or flare.

"Cover" means a device or system which is placed on or over a waste placed in a waste management unit so that the entire waste surface area is enclosed and sealed to minimize air emissions. A cover may have openings necessary for operation, inspection, and maintenance of the waste management unit such as access hatches, sampling ports, and gauge wells provided that each opening is closed and sealed when not in use. Examples of covers include a fixed roof installed on a tank, a lid installed on a container, and an air-supported enclosure installed over a waste management unit.

"External floating roof" means a pontoon-type or double-deck type cover with certain rim sealing mechanisms that rests on the liquid surface in a waste management unit with no fixed roof.

"Facility" means all process units and product tanks that generate waste within a stationary source, and all waste management units that are used for waste treatment, storage, or disposal within a stationary source.

"Fixed roof" means a cover that is mounted on a waste management unit in a stationary manner and that does not move with fluctuations in liquid level.

"Floating roof" means a cover with certain rim sealing mechanisms consisting of a double deck, pontoon single deck, internal floating cover or covered floating roof, which rests upon and is supported by the liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and unit wall.

"Individual drain system" means the system used to convey waste from a process unit, product storage tank, or waste management unit to a waste management unit. The term includes all process drains and common junction boxes, together with their associated sewer lines and other junction boxes, down to the receiving waste management unit.

"Internal floating roof" means a cover that rests or floats on the liquid surface inside a waste management unit that has a fixed roof.

"Liquid-mounted seal" means a foam or liquid-filled primary seal mounted in contact with the liquid between the waste management unit wall and the floating roof continuously around the circumference.

"Loading" means the introduction of waste into a waste management unit but not necessarily to complete capacity (also referred to as filling).

"No detectable emissions" means less than 500 parts per million by volume (ppmv) above background levels, as measured by a detection instrument reading in accordance with the procedures specified in 61.355(h) of this subpart.

"Oil-water separator" means a waste management unit, generally a tank or surface impoundment, used to separate oil from water. An oil-water separator consists of not only the separation unit but also the forebay and other separator basins, skimmers, weirs, grit chambers, sludge hoppers, and bar screens that are located directly after the individual drain system and prior to additional treatment units such as an air flotation unit, clarifier, or biological treatment unit. Examples of an oil-water separator include an API separator, parallel-plate interceptor, and corrugated-plate interceptor with the associated ancillary equipment.

"Petroleum refinery" means any facility engaged in producing, gasoline, kerosine, distillate fuel oils, residual fuel oils, lubricants, or other products through the distillation of petroleum, or through the redistillation, cracking, or reforming of unfinished petroleum derivatives.

"Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

"Point of waste generation" means the location where samples of a waste stream are collected for the purpose of determining the waste flow rate, water content, or benzene concentration in accordance with procedures specified in 61.355 of this subpart. For a chemical manufacturing plant or petroleum refinery, the point of waste generation is a location after the waste stream

exits the process unit component, product tank, or waste management unit generating the waste, and before the waste is exposed to the atmosphere or mixed with other wastes. For a coke-by-product recovery plant subject to and complying with the control requirements of 61.132, 61.133, or 61.134 of this part, the point of waste generation is a location after the waste stream exits the process unit component or waste management unit controlled by that subpart, and before the waste is exposed to the atmosphere. For other facilities subject to this subpart, the point of waste generation is a location after the waste enters the facility, and before the waste is exposed to the atmosphere or placed in a facility waste management unit.

"Process unit" means equipment assembled and connected by pipes or ducts to produce intermediate or final products. A process unit can be operated independently if supplied with sufficient fuel or raw materials and sufficient product storage facilities.

"Process wastewater" means water which comes in contact with benzene during manufacturing or processing operations conducted within a process unit. Process wastewater is not organic wastes, process fluids, product tank drawdown, cooling tower blowdown, steam trap condensate, or landfill leachate.

"Process wastewater stream" means a waste stream that contains only process wastewater.

"Product tank" means a stationary unit that is designed to contain an accumulation of materials that are fed to or produced by a process unit, and is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

"Product tank drawdown" means any material or mixture of materials discharged from a product tank for the purpose of removing water or other contaminants from the product tank.

"Segregated stormwater sewer system" means a drain and collection system designed and operated for the sole purpose of collecting rainfall runoff at a facility, and which is segregated from all other individual drain systems.

"Sewer line" means a lateral, trunk line, branch line, or other enclosed conduit used to convey waste to a downstream waste management unit.

"Slop oil" means the floating oil and solids that accumulate on the surface of an oil-water separator.

"Surface impoundment" means a waste management unit which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or waste containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

"Tank" means a stationary waste management unit that is designed to contain an accumulation of waste and is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

"Treatment process" means a steam stripping unit, thin-film evaporation unit, waste incinerator, or any other process used to comply with 61.348 of this subpart.

"Vapor-mounted seal" means a foam-filled primary seal mounted continuously around the perimeter of a waste management unit so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the unit wall, the liquid surface, and the floating roof.

"Waste" means any material resulting from industrial, commercial, mining or agricultural operations, or from community activities that is discarded or is being accumulated, stored, or physically, chemically, thermally, or biologically treated prior to being discarded, recycled, or discharged.

"Waste management unit" means a piece of equipment, structure, or transport mechanism used in handling, storage, treatment, or disposal of waste. Examples of a waste management unit include a tank, surface impoundment, container, oil-water separator, individual drain system, steam stripping unit, thin-film evaporation unit, waste incinerator, and landfill.

"Waste stream" means the waste generated by a particular process unit, product tank, or waste management unit. The characteristics of the waste stream (e.g., flow rate, benzene concentration, water content) are determined at the point of waste generation. Examples of a waste stream include process wastewater, product tank drawdown, sludge and slop oil removed from waste management units, and landfill leachate.

"Wastewater treatment system" means any component, piece of equipment, or installation that receives, manages, or treats process wastewater, product tank drawdown, or landfill leachate prior to direct or indirect discharge in accordance with the National Pollutant Discharge Elimination System permit regulations under 40 CFR Part 122. These systems typically include individual drain systems, oil-water separators, air flotation units, equalization tanks, and biological treatment units.

"Water seal controls" means a seal pot, p-leg trap, or other type of trap filled with water that has a design capability to create a water barrier between the sewer line and the atmosphere.

§ 61.342 Standards: General

(a) An owner or operator of a facility at which the total annual benzene quantity from facility waste is less than 10 megagrams per year (Mg/yr) shall be exempt from the requirements of paragraphs (b) and (c) of this section. The total annual benzene quantity from facility waste is the sum of the annual benzene quantity for each waste stream at the facility that has a flow-weighted annual average water content greater than 10 percent. The total annual benzene quantity from facility waste shall be determined in accordance with the procedures specified in 61.355(a) of this subpart.

(b) Each owner or operator of a facility at which the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr as determined in paragraph (a) of this section shall be in compliance with the requirements of paragraphs (c) through (g) of this section no later than March 7, 1990, or by the initial startup for a new source with an initial startup after this date.

(c) Each owner or operator of a facility at which the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr as determined in paragraph (a) of this section shall manage and treat the facility waste as follows:

(1) For each waste stream, the owner or operator shall:

(i) Remove or destroy the benzene contained in the waste using a treatment process or wastewater treatment system that complies with the standards specified in 61.348 of this subpart.

(ii) Comply with the standards specified in 61.343 through 61.347 of this subpart for each waste management unit that receives or manages the waste stream prior to and during treatment of the waste stream in accordance with paragraph (c)(1)(i) of this section.

(iii) Each waste management unit used to manage or treat waste streams that will be recycled to a process shall comply with the standards specified in 61.343 through 61.347 of this subpart. Once the waste stream is recycled to a process, the material is no longer subject to paragraph (c) of this section.

(2) A waste stream is exempt from paragraph (c)(1) of this section provided that the owner or operator demonstrates initially and, thereafter, at least once per year that the flow-weighted annual average benzene concentration for the waste stream is less than 10 ppmw as determined by the procedures specified in 61.355(c) of this subpart.

(3) A process wastewater stream is exempt from paragraph (c)(1) of this section provided that the owner or operator demonstrates initially and, thereafter, at least once per year that one of the following conditions is met:

(i) The process wastewater stream flow rate is less than 0.02 liters per minute; or

(ii) The annual waste quantity of the process wastewater stream is less than 10 Mg/yr.

(d) As an alternative to the requirements specified in paragraph (c) of this section, an owner or operator of a facility at which the total annual benzene quantity from facility waste is equal to or greater than 10 Mg/yr as determined in paragraph (a) of this section may elect to manage and treat the facility waste as follows:

(1) The owner or operator shall manage and treat facility waste other than process wastewater in accordance with the requirements of paragraph (c)(1) of this section.

(2) The owner or operator shall manage and treat process wastewater in accordance with the following requirements:

(i) Process wastewater shall be treated to achieve a total annual benzene quantity from facility process wastewater less than 1 Mg/yr. Total annual benzene from facility process wastewater shall be determined by adding together the annual benzene quantity at the point of waste generation for each untreated process wastewater stream plus the annual benzene quantity exiting the treatment process for each process wastewater stream treated in accordance with the requirements of paragraph (c)(1)(i) of this section.

(ii) Each treated process wastewater stream identified in paragraph (d)(2)(i) shall be managed and treated in accordance with paragraph (c)(1) of this section.

(iii) Each untreated process wastewater stream identified in paragraph (d)(2)(i) of this section is exempt from the requirements of paragraph (c)(1) of this section.

(e) Rather than treating the waste onsite, an owner or operator may elect to comply with paragraph (c)(1)(i) of this section by transferring the waste offsite to another facility where the waste is treated in accordance with the requirements of paragraph (c)(1)(i) of this section. The owner or operator transferring the waste shall:

(1) Comply with the standards specified in 61.343 through 61.347 of this subpart for each waste management unit that receives or manages the waste prior to shipment of the waste offsite.

(2) Include with each offsite waste shipment a notice stating that the waste contains benzene which is required to be managed and treated in accordance with the provisions of this subpart.

(f) Compliance with this subpart will be determined by review of facility records and results from tests and inspections using methods and procedures specified in 61.355 of this subpart.

(g) Permission to use an alternative means of compliance to meet the requirements of 61.342 through 61.352 of this subpart may be granted by the Administrator as provided in 61.353 of this subpart.

§ 61.343 Standards: Tanks

(a) Except as provided in 61.351 of this subpart, the owner or operator shall meet the following standards for each tank in which the waste stream is placed in accordance with 61.342(c)(1)(ii) of this subpart. The standards in this section apply to the treatment of the waste stream in a tank, including dewatering.

(1) The owner or operator shall install, operate, and maintain a fixed-roof and closed-vent system that routes all organic vapors vented from the tank to a control device.

(i) The fixed-roof shall meet the following requirements:

(A) The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(B) Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the tank except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair.

(ii) The closed-vent system and control device shall be designed and operated in accordance with the requirements of 61.349 of this subpart.

(b) Each cover seal, access door, and all other openings shall be checked by visual inspection initially and quarterly thereafter to ensure that no cracks or gaps occur between the cover and tank wall and that access doors and other openings are closed and gasketed properly.

(c) Except as provided in 61.350 of this subpart, when a broken seal or gasket or other problem is identified, or when detectable emissions are measured, first efforts at repair shall be made as soon as practicable, but not later than 45 calendar days after identification.

§ 61.344 Standards: Surface impoundments

(a) The owner or operator shall meet the following standards for each surface impoundment in which waste is placed in accordance with 61.342(c)(1)(ii) of this subpart:

(1) The owner or operator shall install, operate, and maintain on each surface impoundment a cover (e.g., air-supported structure or rigid cover) and closed-vent system that routes all organic vapors vented from the surface impoundment to a control device.

(i) The cover shall meet the following requirements:

(A) The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(B) Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the surface impoundment except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair.

(C) The cover shall be used at all times that waste is placed in the surface impoundment except during removal of treatment residuals in accordance with 40 CFR 268.4 or closure of the surface impoundment in accordance with 40 CFR 264.228. (Note: the treatment residuals generated by these activities may be subject to the requirements of this part.)

(ii) The closed-vent system and control device shall be designed and operated in accordance with 61.349 of this subpart.

(b) Each cover seal, access hatch, and all other openings shall be checked by visual inspection initially and quarterly thereafter to ensure that no cracks or gaps occur and that access hatches and other openings are closed and gasketed properly.

(c) Except as provided in 61.350 of this subpart, when a broken seal or gasket or other problem is identified, or when detectable emissions are measured, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.

§ 61.345 Standards: Containers

(a) The owner or operator shall meet the following standards for each container in which waste is placed in accordance with 61.342(c)(1)(ii) of tnis subpart:

(1) The owner or operator shall install, operate, and maintain a cover on each container used to handle, transfer, or store waste in accordance with the following requirements:

(i) The cover and all openings (e.g., bungs, hatches, and sampling ports) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(ii) Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the container except when it is necessary to use the opening for waste loading, removal, inspection, or sampling.

(2) Loading a pumpable waste into a container shall be performed by the owner or operator using a submerged fill pipe. The submerged fill pipe outlet shall extend to within two fill pipe diameters of the bottom of the container while the container is being loaded. During loading of the waste, the cover shall remain in place and all openings shall be maintained in a closed, sealed position except for those openings required for the submerged fill pipe and for venting of the container to prevent physical damage or permanent deformation of the container or cover.

(3) Treatment of a waste in a container, including aeration, thermal or other treatment, shall be performed by the owner or operator in a manner such that whenever it is necessary for the container to be open while the waste is being treated, the container is located under a cover (e.g., enclosure) with a closed-vent system that routes all organic vapors vented from the container to a control device.

(i) The cover and all openings (e.g., doors, hatches) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(ii) The closed-vent system and control device shall be designed and operated in accordance with 61.349 of this subpart.

(b) Each cover and all openings shall be visually inspected initially and quarterly thereafter to ensure that they are closed and gasketed properly.

(c) Except as provided in 61.350 of this subpart, when a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.

§ 61.346 Standards: Individual drain systems

(a) Except as provided in paragraph (b) of this section, the owner or operator shall meet the following standards for each individual drain system in which waste is placed in accordance with 61.342(c)(1)(ii) of this subpart:

(1) The owner or operator shall install, operate, and maintain on each drain system opening a cover and closed-vent system that routes all organic vapors vented from the drain system to a control device.

(i) The cover shall meet the following requirements:

(A) The cover and all openings (e.g., access hatches, sampling ports) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(B) Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the drain system except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair.

(ii) The closed-vent system and control device shall be designed and operated in accordance with 61.349 of this subpart.

(2) Each cover seal, access hatch, and all other openings shall be checked by visual inspection initially and quarterly thereafter to ensure that no cracks or gaps occur and that access hatches and other openings are closed and gasketed properly.

(3) Except as provided in 61.350 of this subpart, when a broken seal or gasket or other problem is identified, or when detectable emissions are measured, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.

(b) As an alternative to complying with paragraph (a) of this section, an owner or operator may elect to comply with the following requirements:

(1) Each drain shall be equipped with water seal controls or a tightly sealed cap or plug.

(2) Each junction box shall be equipped with a cover and may have a vent pipe. The vent pipe shall be at least 90 cm (3 ft) in length and shall not exceed 10.2 cm (4 in) in diameter.

(i) Junction box covers shall have a tight seal around the edge and shall be kept in place at all times, except during inspection and maintenance.

(ii) One of the following methods shall be used to control emissions from the junction box vent pipe to the atmosphere:

(A) Equip the junction box with a system to prevent the flow of organic vapors from the junction box vent pipe to the atmosphere during normal operation. An example of such a system includes use of water seal controls. A flow indicator shall be installed, operated, and maintained on each junction box vent pipe to ensure that organic vapors are not vented from the junction box to the atmosphere during normal operation.

(B) Connect the junction box vent pipe to a closed-vent system and control device in accordance with 61.349 of this subpart.

(3) Each sewer line shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces.

(4) Equipment installed in accordance with paragraphs (b)(1), (b)(2), or (b)(3) shall be inspected as follows:

(i) Each drain using water seal controls shall be checked by visual or physical inspection initially and thereafter quarterly for indications of low water levels or other conditions that would reduce the effectiveness of water seal controls.

(ii) Each drain using a tightly sealed cap or plug shall be visually inspected initially and thereafter quarterly to ensure caps or plugs are in place and properly installed.

(iii) Each junction box shall be visually inspected initially and thereafter quarterly to ensure that the cover is in place and to ensure that the cover has a tight seal around the edge.

(iv) The unburied portion of each sewer line shall be visually inspected initially and thereafter quarterly for indication of cracks, gaps, or other problems that could result in benzene emissions.

(5) Except as provided in 61.350 of this subpart, when a broken seal, gap, crack or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.

§ 61.347 Standards: Oil-water separators

(a) Except as provided in 61.352 of this subpart, the owner or operator shall meet the following standards for each oil-water separator in which waste is placed in accordance with 61.342(c)(1)(ii) of this subpart:

(1) The owner or operator shall install, operate, and maintain a fixed-roof and closed-vent system that routes all organic vapors vented from the oil-water separator to a control device.

(i) The fixed-roof shall meet the following requirements:

(A) The cover and all openings (e.g., access hatches, sampling ports, and gauge wells) shall be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(B) Each opening shall be maintained in a closed, sealed position (e.g., covered by a lid that is gasketed and latched) at all times that waste is in the oil-water separator except when it is necessary to use the opening for waste sampling or removal, or for equipment inspection, maintenance, or repair.

(ii) The closed-vent system and control device shall be designed and operated in accordance with the requirements of 61.349 of this subpart.

(b) Each cover seal, access hatch, and all other openings shall be checked by visual inspection initially and quarterly thereafter to ensure that no cracks or gaps occur between the cover and oil-water separator wall and that access hatches and other openings are closed and gasketed properly.

(c) Except as provided in 61.350 of this subpart, when a broken seal or gasket or other problem is identified, or when detectable emissions are measured, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.

§ 61.348 Standards: Treatment processes

(a) Except as provided in paragraph (a)(5) of this section, the owner or operator shall treat the waste stream in accordance with the following requirements:

(1) The owner or operator shall design, install, operate, and maintain a treatment process that either:

(i) Removes benzene from the waste stream to a level less than 10 parts per million by weight (ppmw) on a flow-weighted annual average basis,

(ii) Removes benzene from the waste stream by 99 percent or more on a mass basis, or

(iii) Destroys benzene in the waste stream by incinerating the waste in a combustion unit that achieves a destruction efficiency of 99 percent or greater for benzene.

(2) Each treatment process complying with paragraphs (a)(1)(i) or (a)(1)(ii) of this section shall be designed and operated in accordance with the appropriate waste management unit standards specified in 61.343 through 61.347 of this subpart. For example, if a treatment process is a tank, then the owner or operator shall comply with 61.343 of this subpart.

(3) For the purpose of complying with the requirements specified in paragraph (a)(1)(i) of this section, the intentional or unintentional reduction in the benzene concentration of a waste stream by dilution of the waste stream with other wastes or materials is not allowed.

(4) An owner or operator may aggregate or mix together individual waste streams to create a combined waste stream for the purpose of facilitating treatment of waste to comply with the requirements of paragraph (a)(1) of this section except as provided in paragraph (a)(5) of this section.

(5) If an owner or operator aggregates or mixes any combination of process wastewater, product tank drawdown, or landfill leachate subject to 61.342(c)(1) of this subpart together with other waste streams to create a combined waste stream for the purpose of facilitating management or treatment of waste in a wastewater treatment system, then the wastewater treatment system shall be operated in accordance with paragraph (b) of this section.

(b) The owner or operator that aggregates or mixes individual waste streams as defined in paragraph (a)(5) of this section for management and treatment in a wastewater treatment system shall comply with the following requirements:

(1) The owner or operator shall design and operate each waste management unit that comprises the wastewater treatment system in accordance with the appropriate standards specified in 61.343 through 61.347 of this subpart.

(2) The provisions of paragraph (b)(1) of this section do not apply to any waste management unit that the owner or operator demonstrates to meet the following conditions initially and, thereafter, at least once per year:

(i) The benzene content of each waste stream entering the waste management unit is less than 10 ppmw on a flow-weighted annual average basis as determined by the procedures specified in 61.355(c) of this subpart; and

(ii) The total annual benzene quantity contained in all waste streams managed or treated in exempt waste management units comprising the facility wastewater treatment systems is less than 1 Mg/yr. For this determination, total annual benzene quantity shall be calculated as follows:

(A) The total annual benzene quantity shall be calculated as the sum of the individual benzene quantities determined at each location where a waste stream first enters an exempt waste management unit. The benzene quantity exiting from an exempt waste management unit shall not be included in this calculation.

(B) The annual benzene quantity in a waste stream managed or treated in an enhanced biodegradation unit shall not be included in the calculation of the total annual benzene quantity, if the enhanced biodegradation unit is the first exempt unit in which the waste is managed or treated. A unit shall be considered enhanced biodegradation provided that the process generates biomass, some of which is recycled as well as periodically removed from the unit; and typically operates at a food-to-microorganism ratio in the range of 0.05 to 1.0 kg of biological oxygen demand per kg of biomass per day, a mixed liquor suspended solids ratio in the range of 1 to 8 grams per liter, and a residence time in the range of 3 to 36 hours.

(c) The owner and operator shall demonstrate that each treatment process or wastewater treatment system unit, except as provided in paragraph (d) of this section, achieves the appropriate conditions specified in paragraphs (a) or (b) of this section in accordance with the following requirements:

(1) Engineering calculations in accordance with requirements specified in 61.356(e) of this subpart; or

(2) Performance tests conducted using the test methods and procedures that meet the requirements specified in 61.355 of this subpart.

(d) A treatment process or waste stream is in compliance with the requirements of this subpart and exempt from the requirements of paragraph (c) of this section provided that the owner or operator documents that the treatment process or waste stream is in compliance with other regulatory requirements as follows:

(1) The treatment process is a hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR 264, Subpart O;

(2) The treatment process is an industrial furnace or boiler burning hazardous waste for energy recovery for which the owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR 266, Subpart D;

(3) The waste stream is treated by a means or to a level that meets benzene-specific treatment standards in accordance with the Land Disposal Restrictions under 40 CFR Part 268, and the treatment process is designed and operated with a closed-vent system and control device meeting the requirements of 61.349 of this subpart;

(4) The waste stream is treated by a means or to a level that meets benzene-specific effluent limitations or performance standards in accordance with the Effluent Guidelines and Standards under 40 CFR Parts 401-464, and the treatment process is designed and operated with a closed-vent system and control device meeting the requirements of 61.349 of this subpart; or

(5) The waste stream is discharged to an underground injection well for which the owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR Part 122.

(e) If the treatment process or wastewater treatment system unit has any openings (e.g., access doors, hatches, etc), all such openings shall be sealed (e.g., gasketed, latched, etc.) and kept closed at all times when waste is being treated, except during inspection and maintenance.

(f) Each seal, access door, and all other openings shall be checked by visual inspections initially and quarterly thereafter to ensure that no cracks or gaps occur and that openings are closed and gasketed properly.

(g) Except as provided in 61.350 of this subpart, when a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after identification.

(h) Except for treatment processes complying with paragraph (d) of this section, the Administrator may request at any time an owner or operator demonstrate that a treatment process or wastewater treatment system unit meets the applicable requirements specified in paragraphs (a) or (b) of this section by conducting a performance test using the test methods and procedures as required in 61.355 of this subpart.

(i) The owner or operator of a treatment process or wastewater treatment system unit that is used to comply with the provisions of this section shall monitor the unit in accordance with the applicable requirements in 61.354 of this subpart.

§ 61.349 Standards: Closed-vent systems and control devices

(a) For each closed-vent system and control device used to comply with standards in accordance with 61.343 through 61.348 of this subpart, the owner or operator shall properly design, install, operate, and maintain the closed-vent system and control device in accordance with the following requirements:

(1) The closed-vent system shall:

(i) Be designed to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and thereafter at least once per year by the methods specified in 61.355(h) of this subpart.

(ii) A flow indicator shall be installed on each vent stream to the control device to ensure that the vapors are being routed to the device. The flow indicator shall be installed in the vent stream at the nearest feasible point to the control device inlet but before being combined with other vent streams.

(iii) All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(2) The control device shall be designed and operated in accordance with the following conditions:

(i) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall meet one of the following conditions:

(A) Reduce the organic emissions vented to it by 95 weight percent or greater;

(B) Achieve a total organic compound concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen; or

(C) Provide a minimum residence time of 0.5 seconds at a minimum temperature of 760°C. If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater.

(ii) A vapor recovery system (e.g., carbon adsorption system or condenser) shall recover the organic emissions vented to it with an efficiency of 95 weight percent or greater.

(iii) A flare shall comply with the requirements of 40 CFR 60.18.

(b) Each closed-vent system and control device used to comply with this subpart shall be operated at all times when waste is placed in the waste management unit vented to the control device except when maintenance or repair of the waste management unit cannot be completed without a shutdown of the control device.

(c) An owner and operator shall demonstrate that each control device, except for a flare, achieves the appropriate conditions specified in paragraph (a)(2) of this section by using one of the following methods:

(i) Engineering calculations in accordance with requirements specified in 61.356(f) of this subpart; or

(ii) Performance tests conducted using the test methods and procedures that meet the requirements specified in 61.355 of this subpart.

(d) An owner or operator shall demonstrate compliance of each flare in accordance with paragraph (a)(2)(iii) of this section.

(e) The Administrator may request at any time an owner or operator demonstrate that a control device meets the applicable conditions specified in paragraph (a)(2) of this section by conducting a performance test using the test methods and procedures as required in 61.355 of this subpart.

(f) Each closed-vent system and control device shall be visually inspected initially and quarterly thereafter. The visual inspection shall include inspection of ductwork and piping and connections to covers and control devices for evidence of visible defects such as holes in ductwork or piping and loose connections.

(g) Except as provided in 61.350 of this subpart, if visible defects are observed during an inspection, or if other problems are identified, or if detectable emissions are measured, a first effort to repair the closed-vent system and control device shall be made as soon as practicable but no later than 5 calendar days after detection. Repair shall be completed no later than 15 calendar days after the emissions are detected or the visible defect is observed.

(h) The owner or operator of a control device that is used to comply with the provisions of this section shall monitor the control device in accordance with 61.354(c) of this subpart.

§ 61.350 Standards: Delay of repair

(a) Delay of repair of facilities or units that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial facility or unit shutdown.

(b) Repair of such equipment shall occur before the end of the next facility or unit shutdown.

§ 61.351 Alternative standards for tanks

(a) As an alternative to the standards for tanks specified in 61.343 of this subpart, an owner or operator may elect to comply with one of the following:

(1) A fixed roof and internal floating roof meeting the requirements in 40 CFR 60.112b(a)(1);

(2) An external floating roof meeting the requirements of 40 CFR 60.112b(a)(2); or

(3) An alternative means of emission limitation as described in 40 CFR 60.114b.

(b) If an owner or operator elects to comply with the provisions of this section, then the owner or operator is exempt from the provisions of 61.343 of this subpart applicable to the same facilities.

§ 61.352 Alternative standards for oil-water separators

(a) As an alternative to the standards for oil-water separators specified in 61.347 of this subpart, an owner or operator may elect to comply with one of the following:

(1) A floating roof meeting the requirements in 40 CFR 60.693-2(a); or

(2) An alternative means of emission limitation as described in 40 CFR 60.694.

(b) For portions of the oil-water separator where it is infeasible to construct and operate a floating roof, such as over the weir mechanism, a fixed roof vented to a vapor control device that meets the requirements in 61.347 and 61.349 of this subpart shall be installed and operated.

(c) Except as provided in paragraph (b) of this section, if an owner or operator elects to comply with the provisions of this section, then the owner or operator is exempt from the provisions in 61.347 of this subpart applicable to the same facilities.

§ 61.353 Alternative means of emission limitation

(a) If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in benzene emissions at least equivalent to the reduction in benzene emissions achieved by the applicable requirements in 61.342 through 61.349 of this subpart, the Administrator will publish in the FEDERAL REGISTER a notice permitting the use of the alternative means for purposes of compliance with that requirement. The notice may condition the permission on requirements related to the operation and maintenance of the alternative means.

(b) Any notice under paragraph (a) of this section shall be published only after public notice and an opportunity for a hearing.

(c) Any person seeking permission under this section shall collect, verify, and submit to the Administrator information showing that the alternative means achieves equivalent emission reductions.

Section 6 List of Sources Affected

In this section sources that may be affected by the promulgated regulations are listed. These sources were identified in the source categories of benzene transfer and benzene waste operations. This list should assist the EPA/State air program personnel in informing the industry regarding the new regulations. The benzene waste operations source list must be used with caution as it was compiled from 10 year old databases, and some sources may have ceased production of benzene, may have changed ownership, or may have changed operations since then. At the same time, there may be some other sources that are not on the list but may be subject to the standards. Latest information available should be used in the determination of the sources being subject to standards. This list may be supplemented by using Toxic Release Inventory System (TRIS) and other databases available.

Benzene Transfer Facilities

Bulk benzene transfer operations occur at benzene production facilities and benzene bulk terminals. Most of these facilities are benzene production facilities. It is estimated that 43 existing sources will be subject to the standards; however, no new sources are expected. A currently available list of sources is presented here.

DIRECTORY OF CHEMICAL PRODUCERS

Benzene (Benzol) (Cyclohexatriene) (Phenyl hydride) Producers

Amerada Hess Corporation
Hess Oil Virgin Islands Corp. (subsidiary)
St. Croix, Virgin Islands

American Petrofina Incorporated
Fina Oil and Chemical Company (subsidiary)
Port Arthur, Texas

Amoco Corporation
Amoco Oil Company (subsidiary)
Texas City, Texas

Aristech Chemical Corporation
Clairton, PA

Arochem International Inc.
Penuelas, Puerto Rico

Ashland Oil, Inc.
Ashland Chemical Company, Division
Petrochemicals Division
Catlettsburg, KY

Atlantic Richfield Company
Lyondell Petrochemical Company
Division
Channelview, TX
Houston, TX

BP America, Inc
BP Chemicals America, Inc., Subsidiary
Lima, Oh

Sohio Oil Company
Alliance, LA

Champlin Refining & Chemicals Inc.
Corpus Christi, TX

Chevron Corporation
Chevron Chemical Company (Subsidiary)
Aromatics and Derivates Division
Philadelphia, PA
Port Arthur, TX

Benzene (Cont'd)

Citgo Petroleum Corp.
Lake Charles, LA

The Coastal Corporation
  Coastal Eagle Point Oil Co. (Subsidiary)
Westville, NJ

Coastal Refining and Marketing, Inc (Subsidiary)
Corpus Christi, TX

Crown Central Petroleum Corporation
  Chemical Division
Pasadena, TX

Dow Chemical U.S.A.
Freeport, TX
Plaquemine, LA

Exxon Corporation
  Exxon Chemical Company, division
   Exxon Chemical Americas
Baton Rouge, LA
Baytown, TX

Hoechst Celanese Corp.
  Engineering Plastics Group
Bayport, TX

Kerr-McGee Corporation
  Kerr-McGee Refining Corporation (Subsidiary)
    Southwestern Refining Company, Inc.
Corpus Christi, TX

Koch Industries, Inc.
Koch Refining Company (Subsidiary)
Corpus Christi, TX

Mobil Corporation
  Mobil Oil Corporation
   Mobil Chemical Company, division
     Petrochemicals Division
Beaumont, TX

U.S. Marketing and Refining
  Division
Chalmette, LA

Benzene (Cont'd)

Occidental Petroleum Corporation
  Cain Chemical Inc. (Subsidiary)
    Petrochemical Division
Chocolate Bayou, TX
Corpus Christi, TX

Phillips Petroleum Company
  Phillips 66 Company (Subsidiary)
    Chemicals Division
      Specialty Chemicals
Sweeny, TX

Phillips Puerto Rico Core Inc. (Subsidiary)
Guayama, PR

Salomon Inc.
  Phibro Energy, Inc.
    Hill Petroleum
      Hill Chemical Co.
Houston, TX

Shell Oil Company
  Shell Chemical Company, division
Deer Park, TX
Odessa, TX
Wood River, IL

Sun Company, Inc.
  Sun Refining and Marketing Co. (Subsidiary)
Marcus Hook , PA
Toledo, OH
Tulsa, OK

Texaco Inc.
  Texaco Chemical Company (Subsidiary)
Delaware City, DE
Eldorado, KS
Port Arthur, TX

Unocal Corporation
  Union Oil Company of California
    (Subsidiary)
   Oil & Gas Division
Beaumont, TX
Chicago, IL

USX Corporation
  Marathon Oil Company (Subsidiary)
   Marathon Petroleum Company (Subsidiary)
Texas City, TX

Source: SRI International, January 1, 1989.

Benzene Waste Operations

Wastes that contain benzene are generated by facilities such as chemical plants, petroleum refineries, and coke by-product recovery plants. Commercial hazardous waste treatment, storage, and disposal facilities (TSDF) also may receive benzene-laden wastes (the rule only affects these industries). The EPA's data base for this analysis includes 398 facilities that generate benzene wastes. The data base encompasses the facilities and wastes likely to account for the majority of benzene emissions from waste operations. This list of 398 sources is included here by EPA regions.

The Standard Industrial Classification (SIC) codes for the respondents include 2800 (chemical products), 2911 (petroleum refineries), 3312 (blast furnace and steel mills), 4959 (sanitary services), and 9511 (air, water, solid waste management).

LIST OF FACILITIES USED FOR BENZENE WASTE ANALYSIS

	PLANT	CITY	STATE
	REGION 1:		
1	CECOS	STAMFORD	CT
2	CECOS INT'L	BRISTOL	CT
3	DOW CHEMICAL	LEDYARD	CT
4	ENV. WASTE RESOURCES	WATERBURY	CT
5	UPJOHN CO.,THE	NORTH HAVEN	CT
6	CIBA CORNING	MEDFIELD	MA
7	COMMERCIAL DISPOSAL	WEST SPRINGFIEL	MA
	REGION 2:		
8	AMERADA-HESS	PORT READING	NJ
9	AMERICAN CYANAMID	BRIDGEWATER	NJ
10	AMERICAN CYANAMID CO	LINDEN	NJ
11	ATLANTIC WOOD INDUST	HAINESPORT	NJ
12	BASF WYANDOTTE CORP.	JAMESBURG	NJ
13	CHEVRON	PERTH AMBOY	NJ
14	CIBA-GEIGY	TOMS RIVER	NJ
15	COASTAL EAGLE PT.	WESTVILLE	NJ
16	COSAN CHEMICAL	CARLSTADT	NJ
17	DUPONT	DEEPWATER	NJ
18	DUPONT	GIBBSTOWN	NJ
19	EXXON	LINDEN	NJ
20	HERCULES	GIBBSTOWN	NJ
21	INT'L FLAVORS & FRAG	UNION BEACH	NJ
22	MANTUA OIL	THOROFARE	NJ
23	MARISOL INC.	MIDDLESEX	NJ
24	MOBAY CORP.	HALEDON	NJ
25	MOBIL OIL	PAULSBORO	NJ
26	MONSANTO CO	BRIDGEPORT	NJ
27	ORBIS PRODUCTS CORP	NEWARK	NJ
28	ORTHO DIAGNOSTICS	RARITAN	NJ
29	REICHHOLD CHEMICALS	ELIZABETH	NJ
30	ROLLINS ENV. SERVICE	BRIDGEPORT	NJ
31	SOLVENT RECOV. SERVI	LINDEN	NJ
32	SOUTHLAND CORP.	GREAT MEADOWS	NJ
33	STAUFFER CHEMICAL CO	EDISON	NJ
34	TROY CHEMICAL CORP.,	NEWARK	NJ
35	AYERST LABS	ROUSES POINT	NY
36	BETHLEHEM STEEL	LACKAWANNA	NY
37	CALLEIA RES. RECOVER	BROOKLYN	NY
38	CECOS INT'L	NIAGRA FALLS	NY
39	CIBRO PETROLEUM	ALBANY	NY
40	EASTMAN KODAK	ROCHESTER	NY
41	FRONTIER CHEMICAL	NIAGRA FALLS	NY
42	GENERAL ELECTRIC	WATERFORD	NY
43	NEPERA CHEMICAL CO.,	HARRIMAN	NY
44	TONAWANDA	TONAWANDA	NY
45	UNION CARBIDE	PENUELAS	PR
46	UNION CARBIDE CARIBE	PONCE	PR

	PLANT	CITY	STATE
	REGION 3:		
47	STANDARD CHLORIDE CH	DELAWARE CITY	DE
48	STAR REF.	DELAWARE CITY	DE
49	BETHLEHEM STEEL CORP	SPARROWS POINT	MD
50	CHEM-CLEAR INC.	BALTIMORE	MD
51	FMC CORP.	BALTIMORE	MD
52	VISTA CHEMICAL	BALTIMORE	MD
53	AMCHEM PRODUCTS INC.	AMBLER	PA
54	ATLANTIC REFINING	PHILADELPHIA	PA
55	ATLANTIC RICHFIELD C	MONACA	PA
56	BETHLEHEM STEEL CORP	BETHLEHEM	PA
57	BP OIL	MARCUS HOOK	PA
58	CALGON CARBON	NEVILLE ISLAND	PA
59	CHEVRON	PHILADELPHIA	PA
60	DELAWARE CONTAINERS	COATSVILLE	PA
61	ERIE COKE	ERIE	PA
62	INDUSTRIAL WASTE REM	LEWISBERRY	PA
63	KOPPERS CO INC	BRIDGEVILLE	PA
64	LTV STEEL COMPANY	PITTSBURGH	PA
65	MINE SAFETY APPL.	EVANS CITY	PA
66	PENNZOIL COMPANY	ROUSEVILLE	PA
67	QUAKER STATE OIL REF	SMETHPORT	PA
68	SHARON STEEL	MONESSEN	PA
69	SHENANGO	SHENANGO	PA
70	SUN PETROLEUM	MARCUS HOOK	PA
71	UNITED REF.	WARREN	PA
72	U.S. STEEL CORP.	CLAIRTON	PA
73	WASTE CONVERSION	HATFIELD	PA
74	WITCO CHEMICAL CORP.	BRADFORD	PA
75	AMOCO OIL REFINERY	YORKTOWN	VA
76	ATLANTIC WOOD INDUST	PORTSMOUTH	VA
77	E.I. DUPONT	PARKERSBURG	WV
78	MIDATLANTIC REF.	ST. MARYS	WV
79	MOBAY CHEMICAL CORP	NEW MARTINSVI	WV
80	QUAKER STATE OIL REF	NEWELL	WV
81	WHEELING PITT	E STEUBENVILLE	WV

LIST OF FACILITIES USED FOR BENZENE WASTE ANALYSIS

	PLANT	CITY	STATE
	REGION 4:		
82	ABC COKE	TARRANT	AL
83	ALLIED SIGNAL	BIRMINGHAM	AL
84	BELCHER REF.	MOBILE BAY	AL
85	CHEM. WASTE MGMT	EMELLE	AL
86	EMPIRE COKE COMPANY	TUSCALOOSA	AL
87	GULF STATES	GADSDEN	AL
88	HUNT REFINING	TUSCALOOSA	AL
89	KOPPERS	WOODWARD	AL
90	LOUISIANA LAND & EXP	SARALAND	AL
91	MONSANTO CO	ANNISTON	AL
92	SLOSS INDUSTRIES	BIRMINGHAM	AL
93	ALPHA CHEMICAL	LAKELAND	FL
94	OLIN CORP.	ST. MARKS	FL
95	AMOCO	SAVANNAH	GA
96	ATLANTIC WOOD INDUST	SAVANNAH	GA
97	DOW CHEMICAL	DALTON	GA
98	DSM CHEMICALS	AUGUSTA	GA
99	NIPRO, INC.	AUGUSTA	GA
100	OLIN CHEMICALS	AUGUSTA	GA
101	YOUNG REF.	DOUGLASVILLE	GA
102	ARMCO INC.	ASHLAND	KY
103	ASHLAND CHEMICAL	BOYD CO.	KY
104	ASHLAND PETROLEUM CO	ASHLAND	KY
105	BF GOODRICH CHEMICAL	CALVERT CITY	KY
106	DEVOE & RAYNOLDS	LOUISVILLE	KY
107	GAF CORP.	CALVERT CITY	KY
108	SOMERSET REFINERY	SOMERSET	KY
109	TREMCO INC.	BARBOURVILLE	KY
110	USS CHEMICALS	FLORENCE	KY
111	AMERADA HESS	PURVIS	MS
112	CHEVRON	PASCAGOULA	MS
113	ERGON REF.	VICKSBURG	MS
114	FIRST CHEMICAL CORP	PASCAGOULA	MS
115	KERR-MCGEE CHEM. COR	MERIDIAN	MS
116	REICHHOLD CHEMICALS	GULFPORT	MS
117	ROGERS LANDFILL	CENTREVILLE	MS
118	SOUTHLAND OIL	SANDERSVILLE	MS
119	SOUTHLAND OIL	LUMBERTON	MS
120	MALLINCKRODT CHEM.	RALEIGH	NC
121	DUPONT	LUGOFF	SC
122	CHATTEM CHEMICALS	CHATTANOOGA	TN
123	MAPCO PETROLEUM	MEMPHIS	TN
124	RHONE-POULENC, INC.	MT. PLEASANT	TN
125	US ARMY MUNITIONS	KINGSTON	TN

	PLANT	CITY	STATE
	REGION 5:		
126	ACME STEEL	CHICAGO	IL
127	CHEM. WASTE MGMT.	CALUMET CITY	IL
128	CID-LANDFILL	CALUMET CITY	IL
129	CLARK OIL & REFINING	BLUE ISLAND	IL
130	CLARK OIL & REFINING	BLUE ISLAND	IL
131	CLARK OIL & REF.	HARTFORD	IL
132	GOODRICH, (B.F.)	HENRY	IL
133	LTV STEEL	S CHICAGO	IL
134	MARATHON PETROLEUM	ROBINSON	IL
135	MOBIL OIL	JOLIET	IL
136	MONSANTO CO	SAUGET	IL
137	NATIONAL STEEL	GRANITE CITY	IL
138	NORCHEM, INC.	MORRIS	IL
139	PEORIA DISPOSAL CO.	PEORIA	IL
140	REILLY TAR AND CHEMI	GRANITE CITY	IL
141	SHELL OIL	WOOD RIVER	IL
142	STEPAN CO.	ELWOOD	IL
143	UNION OIL OF CALIFOR	LEMONT	IL
144	US INDUSTRIAL CHEM.	[illegible]COLA	IL
145	AMOCO CHEMICAL	[illegible]TING	IN
146	BETHLEHEM STEEL	BURNS HARBOR	IN
147	CITIZENS GAS	INDIANAPOLIS	IN
148	HERITAGE ENV. SERVIC	INDIANAPOLIS	IN
149	INDIANA FARM BUREAU	MT. VERNON	IN
150	INLAND STEEL	E CHICAGO	IN
151	LAKETON REFINING	LAKETON	IN
152	MEAD JOHNSON	EVANSVILLE	IN
153	REILLY TAR AND CHEMI	INDIANAPOLIS	IN
154	ROCK ISLAND REFINING	INDIANAPOLIS	IN
155	U.S. STEEL CORP.	GARY	IN
156	CHEM-MET SERVICES	WYANDOTTE	MI
157	CRYSTAL REF.	CARSON CITY	MI
158	DETROIT COKE	DETRIOT	MI
159	DOW CORNING	MIDLAND	MI
160	LAKESIDE REF.	KALAMAZOO	MI
161	MARATHON PET.	DETROIT	MI
162	MICHIGAN DISPOSAL IN	BELLEVILLE	MI
163	NATIONAL STEEL GROUP	ECORSE	MI
164	PARKE-DAVIS	HOLLAND	MI
165	TOTAL PETROLEUM	ALMA	MI
166	TRICIL ENV. SERVICES	MUSKEGON HEIGHT	MI
167	WAYNE DISPOSAL	BELLEVILLE	MI
168	3-M COMPANY	COTTAGE GROVE	MN
169	ASHLAND PETROLEUM	ST. PAUL PARK	MN
170	KOCH REFINING	ROSEMOUNT	MN
171	ALLIED CHEMICAL	IRONTON	OH
172	ARIS TECH CHEMICAL	HAVERHILL	OH
173	ARMCO INC	MIDDLETOWN	OH
174	ASHLAND OIL	CANTON	OH
175	BF GOODRICH	AVON LAKE	OH
176	CECOS INT'L	WILLIAMSBURG	OH
177	CECOS INT'L	CINCINNATI	OH
178	CHEM-CLEAR INC.	CLEVELAND	OH
179	ECOLOTEC	DAYTON	OH
180	ENVIROSAFE SERVICES	OREGON	OH
181	ENV. ENTERPRISES	CINCINNATI	OH
182	ERIEWAY POLL. CONTRO	BEDFORD	OH
183	LTV STEEL	CLEVELAND	OH
184	LTV STEEL	WARREN	OH
185	MONSANTO CO	ADDYSTON	OH
186	NEW BOSTON COKE	PORTSMOUTH	OH
187	PPG INDUSTRIES	DELAWARE	OH
188	PPG INDUSTRIES	NORTON	OH
189	STANDARD OIL OF OHIO	LIMA	OH
190	STANDARD OIL OF OHIO	TOLEDO	OH
191	SUN CO.	TOLEDO	OH
192	TOLEDO COKE	TOLEDO	OH
193	USS CHEMICAL	IRONTON	OH
194	ALDRICH CHEMICALS	MILWAUKEE	WI
195	MURPHY OIL CORPORATI	SUPERIOR	WI

LIST OF FACILITIES USED FOR BENZENE WASTE ANALYSIS

	PLANT	CITY	STATE
	REGION 6:		
196	BERRY PETROLEUM	STEVENS	AR
197	CROSS OIL & REFINING	SMACKOVER	AR
198	ENSCO	EL DORADO	AR
199	GREAT LAKES CHEMICAL	EL DORADO	AR
200	LION OIL	EL DORADO	AR
201	BP OIL	BELLE CHASSE	LA
202	CALCASIEU REFINING	LAKE CHARLES	LA
203	CALUMET REFINING COM	PRINCETON	LA
204	CANAL REF.	CHURCH POINT	LA
205	CECOS INT'L	LIVINGSTON	LA
206	CITGO PETROLEUM	LAKE CHARLES	LA
207	CONOCO CHEMICALS	WESTLAKE	LA
208	DOW CHEMICAL	PLAQUEMINE	LA
209	ETHYL CORP.	BATON ROUGE	LA
210	EXXON CORP	BATON ROUGE	LA
211	GEORGIA-PACIFIC CORP	PLAQUEMINE	LA
212	HANSBROUGH ENERGY	CROWLEY	LA
213	HILL PETROLEUM	ST. ROSE	LA
214	HILL PETROLEUM	KROTZ SPRINGS	LA
215	KERR-MCGEE REFINING	COTTON VALLEY	LA
216	MARATHON PETROLEUM	GARYVILLE	LA
217	MOBIL	CHALMETTE	LA
218	MURPHY OIL CORPORATI	MERAUX	LA
219	PENNZOIL	SHREVEPORT	LA
220	PLACID REFINING	PORT ALLEN	LA
221	RUBICON CHEMICALS IN	GEISMAR	LA
222	SHELL CHEM CO	NORCO	LA
223	STAR REF.	CONVENT	LA
224	STAUFFER CHEMICAL	BATON ROUGE	LA
225	UNION CARBIDE CORP.	HAHNVILLE	LA
226	VISTA CHEMICAL	WESTLAKE	LA
227	BLOOMFIELD REFINING	BLOOMFIELD	NM
228	GIANT REFINERY	GALLUP	NM
229	NAVAJO REFINING	ARTESIA	NM
230	BARRETT REF.	THOMAS	OK
231	CHEMICAL RESOURCES	TULSA	OK
232	CONOCO	PONCA CITY	OK
233	KERR MCGEE	WYNNEWOOD	OK
234	SINCLAIR OIL	TULSA	OK
235	SUN REFINING	TULSA	OK
236	TOTAL PETROLEUM	ARDMORE	OK
237	AMERICAN HOECHST COR	PASADENA	TX
238	AMERICAN HOECHST COR	HOUSTON	TX
239	AMOCO	TEXAS CITY	TX
240	AMOCO CHEMICAL	TEXAS CITY	TX
241	ATLANTIC RICHFIELD	HOUSTON	TX
242	CAIN CHEMICAL	BRAZORIA	TX
243	CELANESE CHEMICAL	BISHOP	TX
244	CELANESE CORP.	PAMPA	TX
245	CHAMPLIN PETROLEUM C	CORPUS CHRISTI	TX
246	CHEVRON	PORT ARTHUR	TX
247	CHEVRON	EL PASO	TX
248	COASTAL REFINING	CORPUS CHRISTI	TX
249	COSDEN OIL & CHEMICA	BIG SPRING	TX
250	CROWN CENTRAL	HOUSTON	TX
251	DENKA CHEMICAL CO.	HOUSTON	TX
252	DIAMOND SHAMROCK	SUNRAY	TX
253	DIAMOND SHAMROCK COR	DEER PARK	TX
254	DIAMOND SHAMROCK REF	THREE RIVERS	TX
255	DOW CHEMICAL USA	FREEPORT	TX
256	DUPONT	BEAUMONT	TX
257	E I DUPONT DE NEMOUR	ORANGE	TX
258	EASTMAN KODAK, INC.	LONGVIEW	TX
259	EL PASO REFINING	EL PASO	TX
260	EXXON CORP	BAYTOWN	TX
261	FINA OIL	BIG SPRING	TX
262	FINA OIL & CHEMICAL	PORT ARTHUR	TX
263	GEORGIA GULF CORP.	PASADENA	TX
264	GEORGIA-PACIFIC CORP	PASADENA	TX
265	GLIDDEN COATINGS	CARROLLTON	TX
266	GOODYEAR TIRE	BEAUMONT	TX
267	GOODYEAR TIRE & RUBB	LAPORTE	TX
268	GULF COAST WASTE DIS	TEXAS CITY	TX
269	HEAT ENERGY TECH.	DALLAS	TX
270	HILL PETROLEUM	HOUSTON	TX
271	HILL PETROLEUM	TEXAS CITY	TX
272	HOWELL HYDROCARBONS	SAN ANTONIO	TX
273	KOCH INDUSTRIES	CORPUS CHRISTI	TX
274	KOCH INDUSTRIES	CORPUS CHRISTI	TX
275	KOPPERS	HOUSTON	TX
276	LA GLORIA OIL AND GA	TYLER	TX
277	LILLY IND. COATINGS	DALLAS	TX
278	LIQUID ENERGY CORP.	BRIDGEPORT	TX
279	LYONDELL PETROCHEMIC	HOUSTON	TX
280	MALONE SERVICE CO.	TEXAS CITY	TX
281	MARATHON OIL	TEXAS CITY	TX
282	MOBIL CHEMICALS	BEAUMONT	TX
283	MOBIL OIL	BEAUMONT	TX
284	MONSANTO CO	ALVIN	TX
285	PHILLIPS	SWEENY	TX
286	PHILLIPS 66 REFINERY	BORGER	TX
287	PRIDE REFINING	ABILENE	TX
288	ROLLINS ENV. SERVICE	DEER PARK	TX
289	SHELL OIL	DEER PARK	TX
290	SHELL OIL REFINERY	ODESSA	TX
291	SOUTHWESTERN REFININ	CORPUS CHRISTI	TX
292	STAR REF.	PORT ARTHUR	TX
293	S.D.S. BIOTECH CORP.	HOUSTON	TX
294	TEXAS ECOLOGISTS	ROBSTOWN	TX
295	TRIFINERY	CORPUS CHRISTI	TX
296	UNION CARBIDE	SEADRIFT	TX
297	UNION CARBIDE CORP	TEXAS CITY	TX
298	UNION OIL OF CALIFOR	NEDERLAND	TX
299	UPJOHN CO	LA PORTE	TX
300	VALERO ENERGY CORP.	CORPUS CHRISTI	TX
301	WITCO CHEMICAL CORPO	POINT COMFORT	TX

LIST OF FACILITIES USED FOR BENZENE WASTE ANALYSIS

	PLANT	CITY	STATE
	REGION 7:		
302	NORCHEM CO.	CLINTON	IA
303	ABBOTT LABORATORIES	WICHITA	KS
304	AIR PRODUCTS & CHEM.	WICHITA	KS
305	DERBY REFINING COMPA	WICHITA	KS
306	DERBY REF.	EL DORADO	KS
307	FARMLAND FACILITIES	PHILLIPSBURG	KS
308	FARMLAND INDUSTRIES	COFFEYVILLE	KS
309	NATIONAL COOPERATIVE	MCPHERSON	KS
310	TEXACO REFINING	EL DORADO	KS
311	TOTAL PETROLEUM	ARKANSAS CITY	KS
312	VULCAN MATERIALS	WICHITA	KS
313	AMERICAN CYANAMID CO	HANNIBAL	MO
314	MONSANTO CO	ST. LOUIS	MO
	REGION 8:		
315	COLORADO REF.	COMMERCE CITY	CO
316	CONOCO	COMMERCE CITY	CO
317	WASTE TECH SERVICES	GOLDEN	CO
318	CENEX REF.	LAUREL	MT
319	CONOCO REFINERY	BILLINGS	MT
320	EXXON	BILLINGS	MT
321	MONTANA REFINING COM	GREAT FALLS	MT
322	AMOCO	MANDAN	ND
323	AMOCO OIL REFINERY	SALT LAKE CITY	UT
324	BIG WEST OIL	SALT LAKE CITY	UT
325	BROWNING MANUF.	MORGAN	UT
326	CHEVRON	SALT LAKE CITY	UT
327	CRYSEN REFINING	WOODS CROSS	UT
328	HERCULES	MAGNA	UT
329	PENNZOIL	ROOSEVELT	UT
330	PETROCHEM RECYCLING	SALT LAKE CITY	UT
331	PHILLIPS 66	WOODS CROSS	UT
332	RMT PROPERTIES	NORTH SALT LAKE	UT
333	USPCI GRASSY MT.	KNOWLES	UT
334	U.S. STEEL CORP.	PROVO	UT
335	AMOCO	CASPER	WY
336	FRONTIER OIL	CHEYENNE	WY
337	LITTLE AMERICA REF.	CASPER	WY
338	SINCLAIR OIL	SINCLAIR	WY
339	WYOMING REF.	NEWCASTLE	WY

	PLANT	CITY	STATE
	REGION 9:		
340	INTERMOUNTAIN REF.	FREDONIA	AZ
341	ALPHA RESINS	PERRIS	CA
342	ANCHOR REF.	MCKITTRICK	CA
343	ATLANTIC RICHFIELD	CARSON	CA
344	CASMALIA RESOURCES	CASMALIA	CA
345	CHEMOIL	SIGNAL HILL	CA
346	CHEVRON	RICHMOND	CA
347	CHEVRON	EL SEGUNDO	CA
348	CONOCO	SANTA MARIA	CA
349	DOW CHEMICAL	PITTSBURG	CA
350	EDGINGTON OIL COMPAN	LONG BEACH	CA
351	EXXON	BENICIA	CA
352	FLETCHER OIL & REFIN	WILMINGTON	CA
353	GOLDEN WEST REFINING	SANTA FE SPRING	CA
354	HUNTWAY REF.	BENECIA	CA
355	HUNTWAY REF.	WILMINGTON	CA
356	IT CORPORATION	BENECIA	CA
357	IT CORPORATION	WESTMORELAND	CA
358	IT CORP.-PETROL. WAS	BUTTONWILLOW	CA
359	KERN OIL & REFINING	BAKERSFIELD	CA
360	LILLY COATINGS	MONTEBELLO	CA
361	LUNDAY-THAGARD CO.	SOUTH GATE	CA
362	MOBIL OIL	TORRANCE	CA
363	NEWHALL REFINING CO.	NEWHALL	CA
364	OXNARD REF.	OXNARD	CA
365	PACIFIC REF.	HERCULES	CA
366	PARAMOUNT PET.	PARAMOUNT	CA
367	POWERINE OIL	SANTA FE SPRING	CA
368	SAN JOAQUIN REF.	BAKERSFIELD	CA
369	SHELL OIL	WILMINGTON	CA
370	SHELL OIL	MARTINEZ	CA
371	SUNLAND REF.	BAKERSFIELD	CA
372	TEXACO REFINING	BAKERSFIELD	CA
373	TEXACO REFINING	WILMINGTON	CA
374	TOSCO CORP.	MARTINEZ	CA
375	UNION OIL OF CALIFOR	RODEO	CA
376	UNION OIL OF CALIFOR	WILMINGTON	CA
377	UNOCAL	LOS ANGELES	CA
378	WITCO CORP.	OILDALE	CA
379	WITCO CORP.	OILDALE	CA
380	CHEVRON	HONOLULU	HI
381	HAWAII INDEP. REF.	EWA BEACH	HI
382	MONTROSE CHEMICAL CO	HENDERSON	NV
383	NEVADA REF.	TONOPAH	NV
	REGION 10:		
384	ARCO ALASKA	KUPARUK	AK
385	ARCO ALASKA	PRUDHOE BAY	AK
386	CHEVRON	KENAI	AK
387	MAPCO PETROLEUM	NORTH POLE	AK
388	PETRO STAR	NORTH POLE	AK
389	TESARO ALASKA PETROL	KENAI	AK
390	CHEVRON	PORTLAND	OR
391	ARCO PETROLEUM	FERNDALE	WA
392	CHEMICAL PROCESSORS	SEATTLE	WA
393	CHEVRON	SEATTLE	WA
394	SHELL OIL	ANACORTES	WA
395	SOHIO	FERNDALE	WA
396	SOUND REF.	TACOMA	WA
397	TEXACO USA	ANACORTES	WA
398	U.S. OIL & REFINING	TACOMA	WA

Section 7 Interrelationship with Other Regulations

Sources at benzene waste operations may be already regulated to some degree by other regulations promulgated by EPA under the CAA and other Federal Statutes (i.e., RCRA, CERCLA, and FWPCA) and by OSHA. The EPA has taken into consideration the presence of other regulations during the development of the final rule for waste operations (Subpart FF). The interrelationship of the standards being promulgated with the other regulations is being presented here for clarification.

The preamble to the proposed standards for benzene waste operations discussed the interrelationship of the proposal with other EPA rulemakings under the CAA, RCRA, CERCLA, and FWPCA. Regulations promulgated under these Acts that affect the management of waste, for the most part, require treatment of the waste to remove or destroy benzene or other organics in at least some of the waste; they do not ensure control of air emissions from the management of the waste prior to treatment or from the treatment process itself. In response to comments on the proposed standards, certain requirements were changed to make the final standards consistent with other related standards promulgated by EPA and to improve the ease of implementation by the facility owner and operator. In the preamble, EPA discusses why the other Acts do not adequately address the problem of controlling benzene emissions from benzene waste operations and how the requirements of the waste NESHAP standards generally relate to other standards. Existing regulations were found to be inadequate for controlling benzene emissions from waste operations for one or more of the following reasons: (1) the other standards do not apply to the sources of benzene emissions, (2) the other standards only apply to a subset

of the sources (e.g., NSPS only applies to new, modified or reconstructed facilities), or (3) the existing regulations do not require controls from the point of generation, but, rather, requires controls only on certain downstream units.

a. CAA Requirements

As discussed in the preamble to the proposed standards, EPA expected that some requirements proposed for the national emission standard for benzene waste operations would overlap with other regulations developed by EPA under the CAA. Under Section 111 of the CAA, EPA has established NSPS controlling VOC emissions from certain VOL storage tanks (40 CFR Part 60, Subpart Kb) and from petroleum refinery wastewater systems (40 CFR Part 60, Subpart QQQ). By controlling VOC emissions, these NSPS also control benzene emissions from some types of benzene waste operations but only at new, modified, or reconstructed facilities. These standards do not require controls on all existing facilities. The EPA has also established specific national emission standards under Section 112 of the CAA for benzene emissions from equipment leaks (40 CFR Part 61, Subpart J), coke by-product recovery plants (40 CFR Part 61, Subpart L), and benzene storage vessels (40 CFR Part 61, Subpart Y). The standards previously promulgated under Sections 111 and 112 of the CAA control benzene emissions from some but not all benzene waste operations.

The control requirements specified in the benzene waste NESHAP are compatible with other CAA standards. Where the standards are applicable to a benzene waste operation that is also regulated by another CAA standard, the requirements for controls, monitoring, recordkeeping, and reporting are as consistent as possible considering that the purpose of the final standards is to specifically control benzene emissions. It is important to note that

coverage under another regulation does not eliminate the requirement to demonstrate compliance with the benzene waste rule.

(1) NSPS (Section 111)

The standards of performance for VOL storage vessels (40 CFR Part 60, Subpart Kb) apply only to those tanks constructed, reconstructed, or modified after July 23, 1984 that contain organic liquid that meets specified vapor pressure criteria. The VOL storage NSPS generally controls large storage tanks (i.e., greater than 151 m^3); waste storage tanks are typically not as large as product storage tanks. Although there is a potential for overlap of the VOL storage vessel rule with the benzene waste operations rule, the control requirements of the two rules are the same. The benzene waste operations rule allows the standards in 40 CFR Part 60, Subpart Kb as alternative standards for tanks.

The standards of performance for petroleum refinery wastewater systems (40 CFR Part 60, Subpart QQQ) apply to affected facilities located in petroleum refineries for which construction, modification, or reconstruction commenced after May 4, 1987. The standards for individual drain systems and oil-water separators established in Subpart QQQ do not apply to chemical plants, TSDF, or coke by-product recovery plants. Therefore, the only overlap that potentially arises is at new, modified, or reconstructed refinery wastewater systems. The standards for individual drain systems in the final benzene waste operations rule allow the alternative use of water seals for drains and vents on covers applied to junction boxes as specified in 40 CFR Part 60, Subpart QQQ. However, either water seal controls on waste streams entering each junction box or venting the junction box to a closed vent system and control device would be required for the benzene waste operations rule to

ensure that no flow occurs through the sewer system and out the junction boxes during normal operation. This additional requirement is necessary to control benzene emissions. To the extent that the NSPS controls are now allowed, the final rule is consistent with the NSPS. Any overlap in the two drain standards is not expected to present a compliance problem.

(2) NESHAP (Section 112)

The national emission standards for benzene storage vessels (40 CFR Part 61, Subpart Y) apply to tanks storing benzene (not mixtures) with a capacity of greater than 38 m^3 (10,000 gallons) that are not located at coke by-product plants or on vehicles. The provisions of Subpart Y are essentially the same as those in 40 CFR Part 60, Subpart Kb. There appears to be no potential for overlap with the benzene waste rule because Subpart Y applies to product storage vessels as opposed to benzene containing wastes.

The national emission standards for equipment leaks of benzene (40 CFR Part 61, Subpart J) apply to specific pieces of equipment (i.e., pumps, compressors, pressure relief devices. sampling connections, open-ended valves or lines, valves, flanges, product accumulator vessels, and control devices required by the subpart) that either contains or contacts a fluid with at least 10 percent benzene by weight. The benzene waste operations rule does not address the same type of emission sources as Subpart J.

The national emission standards for benzene emissions from coke by-product recovery plants (40 CFR Part 61, Subpart L) regulate a number of benzene emission sources from waste operations at coke by-product recovery plants. These include the tar decanters, tar-intercepting sumps, and light-oil sumps at both furnace and foundry coke plants and ammonia liquor storage

tanks at furnace coke plants. These sources could also be regulated under the benzene waste operations rule; however, the control requirements under Subpart L are considered adequate to meet the requirements of the benzene waste rule. Under the benzene waste operations rule, the point of generation for a waste stream regulated by Subpart L is considered the outlet or effluent from the regulated unit. In addition, there are other sources that handle benzene containing wastes at coke by-product recovery plants that are not controlled by Subpart L (e.g., wastewater from the light-oil sump that is not currently stripped (in the ammonia stripper) and ammonia-liquor storage tanks at foundry coke plants). These sources would be regulated under the benzene waste operations rule.

b. RCRA Requirements

Benzene is listed as a hazardous constituent in 40 CFR Part 261, Appendix VIII, and has been identified as a component in several types of RCRA-listed hazardous waste. The proposed organic toxicity characteristic (51 FR 21648, June 13, 1986) would identify additional benzene containing wastes as hazardous. Therefore, certain wastes containing benzene would be hazardous wastes that would be affected by various emission control programs being developed by EPA under authority of RCRA Sections 3004(m), (n), and (u). Standards developed under these RCRA sections would control benzene emissions from certain benzene waste operations, but because of exclusions and exemptions allowed under RCRA not all benzene waste operations at TSDF would be controlled. The benzene waste operations rule will in some cases overlap with regulations developed under RCRA but, most importantly, the waste rule will also control benzene emissions from benzene waste operations not controlled under RCRA.

(1) Land Disposal Restrictions

Under RCRA Section 3004(m), EPA is developing regulations restricting the land disposal of untreated hazardous wastes. The LDR establish standards that require certain hazardous waste be treated to reduce specific hazardous waste properties (e.g., concentrations of individual toxic constituents such as benzene) before the waste is placed in a land disposal unit. The LDR treatment standards are expressed as either concentration limits or specified technologies that are based upon the performance achievable by the "best demonstrated available technologies" that will minimize the health and environmental threats posed by the waste. When a treatment standard is expressed as a concentration limit (i.e., performance level), the owner or operator may use any nonprohibited technology to treat the waste to meet the standard. However, when a treatment standard is expressed as a specific technology or technologies (i.e., BDAT), the owner or operator must treat the waste using the specified technologies prior to land disposal.

The EPA is proposing and promulgating LDR in stages. The first set of LDR, for certain dioxins and solvent-containing hazardous wastes was promulgated on November 7, 1986 (51 FR 40572); the second set of restrictions, the "California list," was promulgated on July 8, 1987 (52 FR 25760); the "First Third" was promulgated on August 17, 1988 (53 FR 31138); and the "Second Third" on June 23, 1989 (54 FR 26597). To date, the only benzene-specific LDR treatment standards that have been promulgated are benzene concentration limits for certain petroleum refining wastes (i.e., 0.011 milligrams of benzene per liter of wastewater and 9.5 milligrams per kilogram of nonwastewaters) (53 FR 31138, August 17, 1988). These treatment standards

are based on the use of solvent extraction or fluidized bed incineration, but the LDR allow the owner or operator to meet this standard by using any nonprohibited technology.

Because LDR treatment minimizes the benzene concentration in the residual waste, LDR treatment processes are allowed as equivalent control systems (treatment processes) under the benzene waste operations rule. While treatment to meet benzene-specific LDR standards will minimize benzene emissions from waste management units in which a waste is placed following treatment, air emission controls are not required under RCRA for the LDR treatment process. Thus, benzene emissions from waste management units in which waste containing benzene is placed prior to LDR treatment and from LDR treatment processes used to treat this waste are not controlled by the standards under RCRA Section 3004(m). These sources of benzene emissions would be controlled as part of the requirements of the benzene waste operations rule.

(2) Air Emission Standards

Section 3004(n) of RCRA directs EPA to promulgate regulations for the monitoring and control of air emissions from hazardous waste TSDF as may be necessary to protect human health and the environment. In a separate three-phase rulemaking, EPA is developing nationwide standards for the control of organic emissions from certain waste management units at TSDF. The first two phases of this rulemaking are addressing total organic emissions as a class from TSDF sources (as opposed to emissions of specific organic compounds such as benzene). For the third phase, EPA is planning to assess the protectiveness of the organic emission control requirements specified by standards developed for the first two phases and for other EPA air emission

control programs such as national emission standards for benzene waste operations. If this assessment determines that additional standards or guidance are necessary to protect human health and the environment, then one approach EPA may choose would be to develop nationwide TSDF standards for individual constituents.

Although EPA is aware that there will be some overlap in the RCRA 3004(n) air emission standards and the benzene waste operation rule, the controls required by these regulations are, to the extent possible, consistent. In addition, regulations being developed under RCRA Section 3004(n) apply to only specific waste management units at TSDF subject to RCRA Subtitle C permitting requirements. Not all facilities managing hazardous waste are subject to RCRA permit requirements and not all waste management units at TSDF subject to RCRA permit requirements will be subject to RCRA air emission standards.

The EPA's analysis indicates that a significant portion of the risk to human health and the environment from benzene waste operations is due to exposure to air emissions from wastewater and wastewater sludges containing benzene. Many waste operations used to manage wastewater containing benzene are not subject to RCRA Subtitle C permitting requirements. The RCRA regulations under 40 CFR 270.1(c)(2)(iv) specifically exclude owners and operators of elementary neutralization units or wastewater treatment units as defined in 40 CFR 260.10 from obtaining a RCRA permit. This exception from RCRA permitting requirements applies not only to the tank where the waste is treated but also to any ancillary equipment connected to the tank (53 FR 34080; September 2, 1988). Thus, a major source of benzene emissions, wastewater collection and treatment units, would be not controlled by the RCRA

standards under Section 3004(n). Benzene emissions from wastewater collection and treatment units at the affected facilities are regulated by the benzene waste rule.

Other benzene waste operation emission sources are also exempt from RCRA Subtitle C permitting requirements and, therefore, may not be controlled by standards under RCRA Section 3004(n). The RCRA regulations under 40 CFR 261.4(a)(8) exclude from the definition of hazardous waste those materials that are reclaimed and returned within 12 months to the process which generated the material. Thus, benzene waste operations that accumulate and store materials containing benzene that are ultimately recycled to the process or processes generating the material (e.g., slop oil collected in waste management units at a petroleum refinery) may not be controlled by air emission standards under RCRA Section 3004(n). Also under RCRA, tanks and containers used to accumulate hazardous waste for short periods of time (i.e., up to 90 or 270 days depending on the quantity of waste generated) may be exempted from the RCRA Subtitle C permitting requirements in accordance with requirements specified in 40 CFR 262.34. Thus, air emission standards under RCRA Section 3004(n) may not control benzene emissions from tanks and containers used to accumulate waste containing benzene. Because these tanks and containers manage the waste near the point where the waste is generated and the potential for benzene emissions is greatest, if the accumulation tanks and containers are not controlled, the majority of the benzene contained in the waste may be emitted to the atmosphere before the waste is transferred to a waste management unit subject to control under RCRA Section 3004(n). The

benzene waste rule regulates benzene waste operations from the point where the waste leaves the process unit where it is generated through treatment of the waste to remove or destroy benzene, including any storage or accumulation devices.

(3) Corrective Action

Under authority of RCRA Section 3004(u), EPA is developing regulations to address releases of hazardous waste or hazardous constituents from SWMU's that pose a threat to human health and the environment. This corrective action program applies to contamination of soil, water, and air media. Therefore, at TSDF with benzene waste operations, benzene emissions from SWMU's may be addressed by a corrective action program. This corrective action program would be designed to achieve target risk levels for individual process units based on an examination of the particular TSDF. It is not intended to set national emission standards for specific constituents, such as benzene, from all TSDF. The final national emission standards for benzene waste operations are applicable to those TSDF that meet the applicability criteria and would require benzene controls for the benzene waste operations conducted at these facilities.

(4) Waste Combustion

The proposed standards for benzene waste operations would have established specific treatment requirements for certain waste streams containing benzene. Several commenters claimed that these treatment requirements would be inconsistent with the LDR treatment standards and the RCRA regulatory approach proposed by EPA under 40 CFR Part 266, Subpart D for burning hazardous waste in any boiler or industrial furnace. It was not EPA's intention in developing the NESHAP for benzene waste operations to prevent or

discourage an owner or operator from using a certain treatment process that they are currently using or plan to use to comply with RCRA standards provided that treatment process can meet or exceed the treatment requirements that EPA has determined to be necessary for reducing benzene emissions to levels protective of public health and the environment. Therefore, EPA concluded that it was appropriate to include boilers and industrial furnaces allowed under the proposed regulatory amendments to 40 CFR Part 266, Subpart D as equivalent waste treatment processes in the final standards. It is important to note that existing regulations in 40 CFR Part 266, Subpart D do not contain substantive control requirements for these waste combustion processes.

c. CERCLA Requirements

The CERCLA as amended by SARA, 42 U.S.C 9601 et. seq., authorizes EPA to undertake removal and remedial actions to clean up hazardous substance releases. Removal actions typically are short-term or temporary measures taken to minimize exposure or danger to humans and the environment from the release of a hazardous substance. Remedial actions are longer term activities that are consistent with a permanent remedy for a release. On-site remedial actions are required by CERCLA Section 121(d)(2) to comply with the requirements of Federal and more stringent State public health and environmental laws that are ARAR's to the specific CERCLA site. "Relevant and appropriate requirements" means those Federal or State requirements that, while not applicable, address problems or situations sufficiently similar to those encountered at the CERCLA site such that their use is well suited to the particular site (53 FR 51478). In addition, the NCP provides that on-site CERCLA removal actions "should comply with the Federal ARAR's to the extent practicable considering the exigencies of the circumstances" (40 CFR 300 65(f)). The EPA has developed interim final guidance on the appropriate

use of ARAR's. It is entitled "The CERCLA Compliance with Other Laws Manual: Parts I and II (9234.1-01 and 9234.1-02). A requirement under a Federal or State environmental law may either be "applicable" or "relevant and appropriate," but not both, to a remedial or removal action conducted at a CERCLA site. "Applicable requirements" as defined in the proposed revisions to the NCP, means those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site [40 CFR 300.5 (proposed), 53 FR 51475; December 21, 1988].

d. CWA Requirements

Wastewater containing benzene is subject to regulation under the CWA. Because CWA controls apply to the point where the wastewater is discharged to a POTW or directly into surface waters, the CWA requirements do not generally control benzene either upstream at the benzene waste operations or at the treatment process used to meet the discharge requirements.

e. OSHA Requirements

Standards are issued by OSHA to protect the health and safety of personnel working at a facility. The OSHA standards limit exposure of workers to hazardous materials such as benzene in the workplace but do not apply to people living outside the facility boundaries. Controls implemented at a facility to comply with OSHA standards are intended and designed to reduce worker exposure to benzene. Consequently, these controls would not necessarily result in reduced benzene emissions to the atmosphere. For example, requiring workers to wear protective equipment such as respirators or

installing engineering controls such as room or hood ventilation systems to maintain benzene concentrations in work areas below specified limits would reduce worker exposure but would not control benzene emissions to the atmosphere. In addition, there is expected to be no overlap between the benzene waste rule and OSHA requirements. Furthermore, sufficient flexibility was included in the rule to allow owners and operators to consider safety in the selection of benzene emission controls for compliance with the final waste rule.

Section 8 Implementation Plan for Benzene NESHAPs

This plan identifies those activities and documents necessary to enable the regional offices and delegated authorities to implement and enforce the national emission standards for benzene as promulgated at 54 FR 38044 (September 14, 1989) and at 55 FR 8292 (March 7, 1990). This plan will note the lead office, contact person, due date, and objective of each activity and document identified.

The goal of each activity and document identified in this plan should be the successful implementation of the new benzene NESHAPs. In setting the deadline for each item identified in this plan, SSCD tried to set realistic dates, i.e., a balance between the need for timely guidance and training and the recognition of the competing demands made upon the person responsible for developing that guidance or training. Given that these two forces are often in a state of flux, the deadlines in this plan are subject to change. SSCD hopes to keep all parties informed of changes in deadlines as soon as those changes are known. If you have any questions regarding this plan, please contact Barbara Durso at FTS 245-3653.

I. Compliance Monitoring Strategy (CMS)

LEAD: SSCD CONTACT: Barbara Durso

DUE DATE: 6/1/90 TELEPHONE: FTS 245-3653

OBJECTIVE: SSCD will explore the need for a compliance monitoring strategy. Designed for use by the headquarters, regions, and delegated authorities, a

CMS describes the responsibilities of each office in implementing the rule and provides guidance on targeting inspections and using self-monitoring data (where available and applicable). Since these NESHAPs are automatically delegated in most cases to State and local authorities, SSCD will explore the need to develop such a plan. A decision whether or not to develop a CMS for the benzene NESHAPs will be made by 6/1/90.

II. Summary of Rules (Benzene transfer and benzene waste operations)

LEAD: ESD CONTACT: Lalit Banker

DUE DATE: 2/27/90 TELEPHONE: FTS 629-5420

OBJECTIVE: Designed for use by the regions, headquarters, state and local authorities, and owners/operators of affected facilities, this document will provide "plain English" summaries of the rules. This document will also consist of flowcharts or tables for determining applicability, standards, compliance, and exemptions. This document will summarize the benzene NESHAPs into two categories: benzene transfer operations and benzene waste operations

III. Summary of Rules (Coke by-product plants and benzene storage tanks)

LEAD: SSCD CONTACT: Barbara Durso

DUE DATE: 3/15/90 TELEPHONE: FTS 245-3653

OBJECTIVE: Same as in II but will cover rules under those source categories.

IV. Inspection Manual and Training for Subpart J

LEAD: SSCD CONTACT: Omayra Salgado

DUE DATE: 9/30/90 TELEPHONE: FTS 382-2837

OBJECTIVE: Designed for use by regional, state, and local inspectors and in-house auditors, these documents will provide a step-by-step guide to inspecting the facilities affected by Subpart J. Training for Subpart J is expected in FY91. Inspection manuals for the other benzene NESHAPs is on the Technical Agenda for FY91.

V. List of Sources Affected

LEAD: SSCD CONTACT: Barbara Durso

DUE DATE: 3/30/90 TELEPHONE: FTS 245-3653

OBJECTIVE: Designed for use by headquarters, regions, and delegated authorities, this document will be an initial compilation of sources known to be or believed to be affected by benzene transfer and waste operations rules. This list was compiled from information in existing databases and from data gathered in the process of rule development. The list also provides SICs for source categories affected by the new rules. A second list will be available within the next three weeks for regional offices or delegated authorities to review and to identify which sources are already in CDS. The regional offices will need to identify to SSCD those sources for which there is not enough information to input the source in CDS.

VI. Compilation of Available Technical Support

LEAD: SSCD with ESD CONTACT: Barbara Durso

DUE DATE: 9/30/91 TELEPHONE: FTS 245-3653

OBJECTIVE: Designed for headquarters, regions, delegated authorities, and owners/operators of affected facilities, this document will serve as an annotated bibliography of existing reference books, guidance, background information documents, and hotlines related to benzene control methodology, health risks, and related topics. This document must be placed on the Technical Agenda and probably will be put together with contractor assistance.

VII. Inventory Assistance

LEAD: SSCD CONTACT: Barbara Durso

DUE DATE: 5/31/90 TELEPHONE: FTS 245-3653

OBJECTIVE: Explore possibility of having a contractor put together a list with complete source names and addresses. The need for this list will be evaluated based upon the information received from the regional offices under item "V."

APPENDIX A

National Emission Standards for Hazardous Air Pollutants

Compliance Status Information

I. SOURCE REPORT

INSTRUCTIONS: Owners or operators of sources of hazardous pollutants subject to the National Emission Standards for Hazardous Air Pollutants are required to submit the information contained in Section I to the appropriate U.S. Environmental Protection Agency Regional Office prior to 90 days after the effective date of any standards or amendments which require the submission of such information.

A list of regional offices is provided in §61.04.

A. SOURCE INFORMATION

1. Identification/Location - Indicate the name and address of each source.

1 2 Region; 3 4 State; 5 8 County; 9 13 Source Number; 14 16 000; 17 18 00; 19 1

20 22 AQCR #; 23 26 City Code; 27 Source Name 46

47 Street Address (Location of Plant) 66; 80

Dup 1-18 19

20 City Name 34; State 35 39

40 State Regis. Number 54; 55 58 NEDS X Ref.

59 SIC 62; 63 FF 64; 65 A/P 8; 77 79 Staff; 80

Dup 1-18 5 19

CS 30; 31 STP; 49 EC; 80

2. Contact - Indicate the name and telephone number of the owner or operator or other responsible official whom EPA may contact concerning this report.

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Dup 1-18 4 1
19 20 21 Name 43

44 46 -
Area Code 47 Number 54 80

5. Source Description - Briefly state the nature of the source (e.g., "Chlor-alkali Plant" or "Machine Shop").

Dup 1-18 4 2
19 20 21 Description 50

51 Continued 79 80

4. Alternative Mailing Address - Indicate an alternative mailing address if correspondence is to be directed to a location different than that specified above.

Dup 1-18 4 3
19 20 21 Number Street or Box Number 45 80

Dup 1-18 4 4
19 20 21 City 36 37 38 State 41 Zip 44 80

5. Compliance Status - The emissions from this source ___ can ___ cannot meet the emission limitations contained in the National Emission Standards on or prior to 90 days after the effective date of any standards or amendments which require the submission of such information.

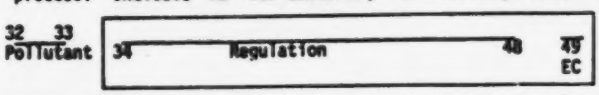
Signature of Owner, Operator or Other Responsible Official

NOTE: If the emissions from the source will exceed those limits set by the National Emission Standards for Hazardous Air Pollutants, the source will be in violation and subject to federal enforcement actions unless granted a waiver of compliance by the Administrator of the U.S. Environmental Protection Agency. The information needed for such waivers is listed in Section II of this form.

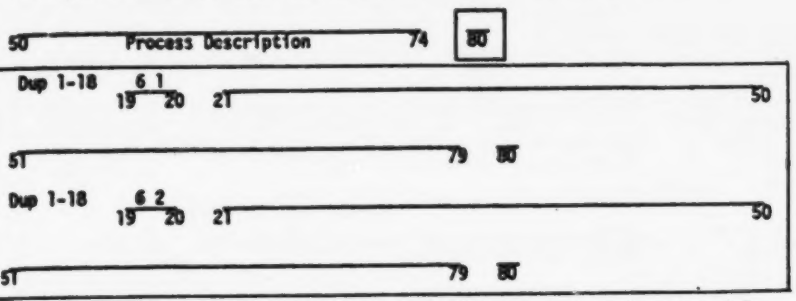
B. PROCESS INFORMATION. Part B should be completed separately for each point of emission for each hazardous pollutant. [Sources subject to 61.22(1) may omit number 4. below.]

Dup 1-13 0 0 5
14 16 17 18 19 20 SCC 27 28 29 30 31
NEDS X Ref LS SIP

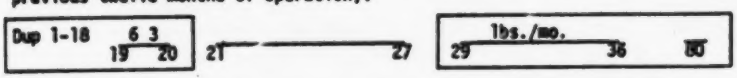
1. Pollutant Emitted - Indicate the type of hazardous pollutant emitted by the process. Indicate "AB" for asbestos, "BE" for beryllium, or "HG" for mercury.



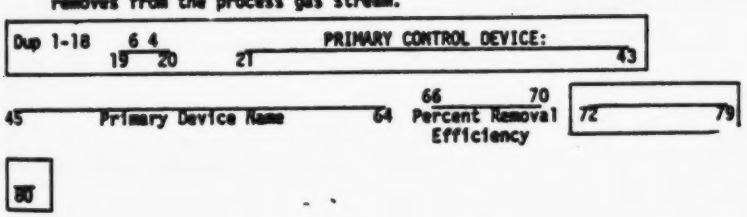
2. Process Description - Provide a brief description of each process (e.g., "hydrogen end box" in a mercury chlor-alkali plant, "grinding machine" in a beryllium machine shop). Use additional sheets if necessary.

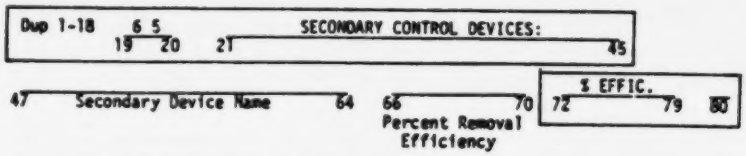


3. Amount of Pollutant - Indicate the average weight of the hazardous material named in Item 1 which enters the process in pounds per month (based on the previous twelve months of operation).



4. Control Devices
   a. Indicate the type of pollution control devices, if any, used to reduce the emissions from the process (e.g., venturi scrubber, baghouse, wet cyclone) and the estimated percent of the pollutant which the device removes from the process gas stream.





b. Asbestos Emission Control Devices Only

i. If a baghouse is specified in Item 4a, give the following information:

- The air flow permeability in cubic feet per minute per square foot of fabric area.

  Air flow permeability = _____ cfm/ft^2

- The pressure drop in inches water gauge across the filter at which the baghouse is operated.

  Operating pressure drop = _____ inches w.g.

- If the baghouse material contains synthetic fill yarn, check whether this material is / / spun / / or not spun.

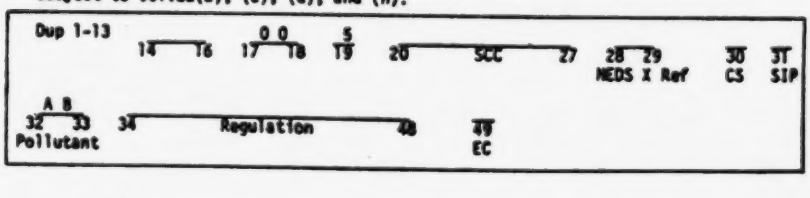
- If the baghouse utilizes a felted fabric, give the minimum thickness in inches and the density in ounces per square yard.

  Thickness = _____ inches Density = _____ oz/yd^2

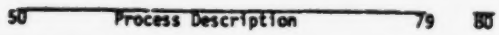
ii. If a wet collection device is specified in Item 4a, give the designed unit contacting energy in inches water gauge.

- Unit contacting energy = _____ inches w.g.

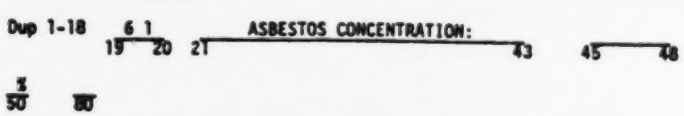
C. DISPOSAL OF ASBESTOS-CONTAINING WASTES. Part C should be completed separately for each asbestos-containing waste generation operation arising from sources subject to §61.22(a), (c), (e), and (h).



1. Waste Generation - Provide a brief description of each process that generates asbestos-containing waste (e.g. disposal of control device wastes).

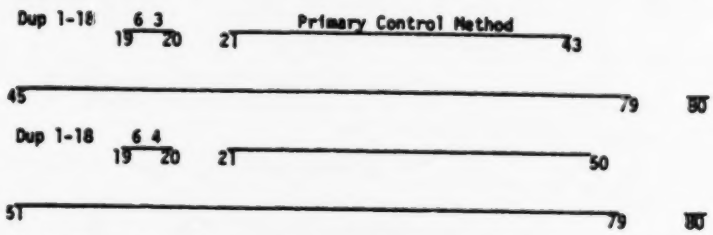


2. Asbestos Concentration - Indicate the average percentage asbestos content of these materials.

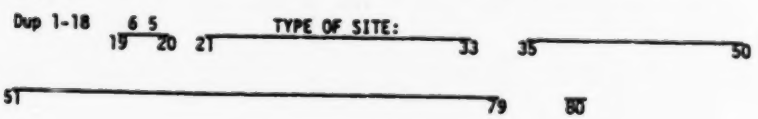


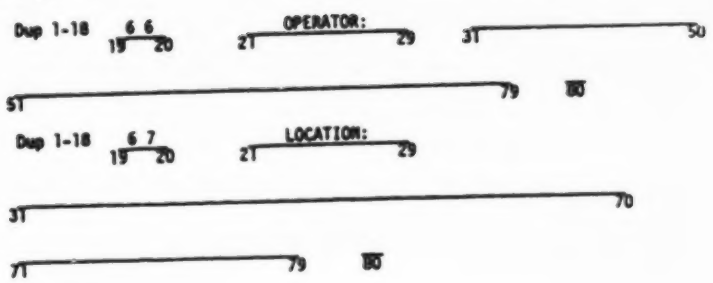
3. Amount of Wastes - Indicate the average weight of asbestos-containing wastes disposed of, measured in kg/day.

4. Control Methods - Indicate the emission control methods used in all stages of waste disposal, from collection, processing, and packaging to transporting and deposition.

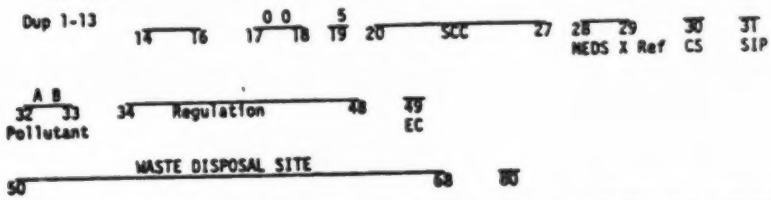


5. Waste Disposal - Indicate the type of disposal site (sanitary landfill, open, covered) or incineration site (municipal, private) where the waste is disposed of and who operates the site (company, private, municipal). State the name and location of the site (closest city or town, county, state).

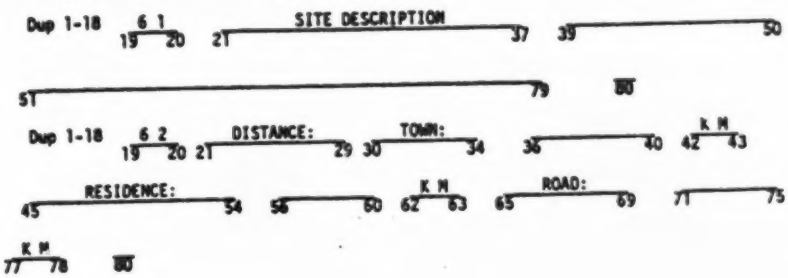




D. WASTE DISPOSAL SITES. Part D should be completed separately for each asbestos waste disposal site subject to section 61.22(1).



1. Description - Provide a brief description of the site, including its size and configuration, and the distance to the closest city or town, closest residence, and closest primary road.



2. Inactivation - After the site is inactivated, indicate the method or methods used to comply with the standard and send a list of the actions that will be undertaken to maintain the inactivated site.

Dup 1-18 6 8 (19 20) (21) COMPLIANCE METHOD/INACTIVE SITE: (52)

(54) (79) (80)

II. Waiver Requests

A. *Waiver of Compliance.* Owners or operators of sources unable to operate in compliance with the National Emission Standards for Hazardous Air Pollutants prior to 90 days after the effective date of any standards or amendments which require the submission of such information may request a waiver of compliance from the Administrator of the U.S. Environmental Protection Agency for the time period necessary to install appropriate control devices or make modifications to achieve compliance. The Administrator may grant a waiver of compliance with the standard for a period not exceeding two years from the effective date of the hazardous pollutant standards, if he finds that such period is necessary for the installation of controls and that steps will be taken during the period of the waiver to assure that the health of persons will be protected from imminent endangerment.

The report information provided in Section I must accompany this application. Applications should be sent to the appropriate EPA regional office.

1. *Processes Involved*—Indicate the process or processes emitting hazardous pollutants to which emission controls are to be applied.

2. *Controls*

a. Describe the proposed type of control device to be added or modification to be made to the process to reduce the emission of hazardous pollutants to an acceptable level. (Use additional sheets if necessary.)

b. Describe the measures that will be taken during the waiver period to assure that the health of persons will be protected from imminent endangerment. (Use additional sheets if necessary.)

3. *Increments of Progress*—Specify the dates by which the following increments of progress will be met.

Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of the component parts to accomplish emission control or process modification.

Dup 1-16 0 1 7 (17 19) (53 54) (55 60) (61 MO/DY/YR 66) (80)

- Date of initiation of on-site construction or installation of emission control equipment or process change.

Dup 1-16 0 2 7 (17 19) (53 54) (55 60) (61 MO/DY/YR 66) (80)

- Date by which on-site construction or installation of emission control equipment or process modification is to be completed.

Dup 1-16 0 3 7 (17 19) (53 54) (55 60) (61 MO/DY/YR 66) (80)

- Date by which final compliance is to be achieved.

Dup 1-16 0 4 7 (17 19) (53 54) (55 60) (61 MO/DY/YR 66) (80)

Appendix B

LIST OF OAQPS CONTACTS

	Telephone Number	FTS
Benzene Waste Operations		
Hustvedt, K. C.	919-541-5395	629-5395
Lucas, Bob	919-541-0884	629-0884
Meyer, Jan	919-541-5254	629-5254
Benzene Transfer Operations		
Butler, Laura	919-541-5267	629-5267
Bell, Doug	919-541-5568	629-5568
Markwordt, Dave	919-541-0837	629-0837
Compliance Policy		
Durso, Barbara	202-245-3653	245-3653